RECLAMATION

Managing Water in the West

Old Camp Nine Bridge Removal

Environmental Assessment

U.S. Department of the Interior
Bureau of Reclamation

June 2008

Old Camp Nine Bridge Removal

Environmental Assessment

U.S. Department of the Interior
Bureau of Reclamation

June 2008

Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
APCD	Air Pollution Control District
APE	Area of Potential Effect
BA	Biological Assessment
BLM	U.S. Department of the Interior, Bureau of Land Management
BMP	Best Management Practice
CARB	California Air Resources Board
CCWD	Calaveras County Water District
CDFG	California Department of Fish and Game
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNEL	Community Noise Exposure Level
CSERC	Central Sierra Environmental Resource Center
CVRWQCB	Central Valley Region Water Quality Control Board
dBA	decibels adjusted
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
°F	degrees Fahrenheit
FERC	Federal Energy Regulatory Commission
FR	Forest Route
H&SC	Health and Safety Code
HEPA	High-Efficiency Particulate Air
HUC	hydrologic unit code
ITA	Indian Trust Assets
kVA	kilowatts
L_{dn}	Day-Night Advisory Sound Level
LOP	limited operating period
MCAB	Mountain Counties Air Basin
MCL	Maximum Contaminant Level
MCV	Manual of California Vegetation
mg/cm^2	milligrams per square centimeter
MTBE	methyl tertiary butyl ether
MW	megawatts
NCPA	Northern California Power Authority
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
NWP	nationwide permit
OHWM	ordinary high water mark

OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric
$PM_{2.5}$	fine suspended particulate matter
PM_{10}	suspended particulate matter
ppt	parts per thousand
RCRA	Resource Conservation and Recovery Act
RIR	resource inventory report
ROI	region of influence
SEPC	Stanislaus Electric Power Company
SHPO	State Historic Preservation Office
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered
TSS	total suspended solids
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WRCB	Water Resources Control Board

Contents

Tables

Figures

Maps

Appendices

United States Department of the Interior
Bureau of Reclamation

Mid-Pacific Region
Central California Area Office
Folsom, California

FINDING OF NO SIGNIFICANT IMPACT

Approval by United States
For The
Removal of Old Camp Nine Bridge

Recommended: _____
Peggi Brooks,
Resource Manager

Concur: _____
Robert Schroeder,
Chief, Division of Resources

Approved: _____
Michael Finnegan,
CCAO Area Manager

Date: June 9, 2008 FONSI No: CCAO-FONSI-08-2

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central California Area Office, California

REMOVAL OF THE OLD CAMP NINE BRIDGE

Finding of No Significant Impact

Lead Agency:
U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
Central California Area Office
Sacramento, California

This Finding of No Significant Impact (FONSI) for the Removal of Camp Nine Bridge has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508). The Central California Area Office of the Bureau of Reclamation (Reclamation) has found that the Proposed Action will not significantly affect the quality of the environment; therefore, an Environmental Impact Statement (EIS) is not required.

ALTERNATIVES CONSIDERED

Under the Proposed Action, Reclamation proposes to demolish and remove the Camp Nine Bridge and approaches to eliminate a public health and safety hazard and reducing the environmental impacts and liabilities of eventual bridge collapse. The demolition includes removal of all steel structures, guard rails, decking materials, concrete footings and concrete piers. The concrete piers will be removed to the bedrock. The existing concrete abutment and wing walls associated with the western approach will be removed, except for the rubble wall associated with the road foundation which has an historic resource value. The eastern abutment and wing walls, access road, and rubble walls associated with the road foundation will be preserved because of their historic resource value. The demolition under this proposed action is expected to occur between August and November, when low water conditions typically occur and all concrete piers are above water.

Under the No-Action alternative, the existing bridge structure would remain in place. The bridge structure would continue to be closed to vehicle and/or pedestrian access. Although the steel structures and two center piers supporting the central span appear to be intact, the wooden deck is too deteriorated to permit any vehicle or pedestrian traffic. The bridge in its current structural condition poses a safety hazard to recreational users and liability to Reclamation. The bridge is subject to total inundation during periods of high flow in the Stanislaus River and/or at high water levels in New Melones Reservoir. These future events will further damage the bridge and lead to its inevitable collapse. This alternative poses a significantly higher safety risk to recreational users and the overall environmental conditions at the site.

In addition to the Proposed Action and the No-Action alternative, additional alternatives were considered but eliminated from further consideration because they failed to meet the screening criteria. These additional alternatives were:

- Restoration of the bridge for vehicle use.
- Modify the Bridge for Pedestrian Use Only.
- Restrict Access to the Bridge by Removal of both the East and West Approach Spans.
- Restrict Access to the Bridge by Fencing Both Approaches to the Bridge

FINDINGS

An Environmental Assessment (EA), distributed for public review in April of 2008, and the attached revisions to that EA have been prepared to disclose potential environmental impacts pursuant to NEPA. The following discussion identifies why any effects of the Proposed Action are not considered significant.

1. Reclamation's Proposed Action will have no impacts to aesthetics and agricultural resources because Reclamation is authorizing the removal of the bridge and some adjoining infrastructures, which will improve the aesthetics of the area and eliminate a continuous public health and safety hazard.

2. The Proposed Action alternative will have no significant affects to air quality because the attainment status would not change as a result of this action.

3. From December through June, there is no demolition activity to avoid the bald Eagle breeding season. Work may proceed from July through November. Should Bald Eagles fail to nest within the territory or breeding fails during the breeding season then the limited operating period will be lifted.

4. Reclamation has transmitted a letter to USFWS determining the Proposed Action will have no affects on threatened or endangered species or other fish and wildlife resources in the Stanislaus River Drainage.

5. The proposed action will have no adverse effects to historic properties pursuant to 36 CFR Part 800.5(b). Measures are being taken to preserve and protect portions of the Camp Nine Road that have historical significance.

6. No significant impacts to mineral resources, population and housing, public services, recreation, and utilities and service systems, are anticipated because the action does not authorize or otherwise control any construction or physical changes beyond use of existing roadways within the Camp Nine area.

7. No impacts to noise (namely no increase in noise associated with transportation) or impacts to transportation and traffic are anticipated.

8. No Indian Trust Assets (ITA) have been identified within the project study area. Therefore the Proposed Action has no effect on Indian Trust Assets.

9. No disproportionately high or adverse environmental or human health impact on minority or low-income communities have been identified for this Proposed Action. Therefore the Proposed Action has no effect on Environmental Justice.

10 Under the Proposed Action, The Camp Nine Bridge will be removed eliminating a safety hazard for recreationists utilizing the area.

11. No impacts to surface water are anticipated, since under the Proposed Action, minimal grading will occur, and best management practices to control erosion and sedimentation will be employed throughout the project duration. All debris associated with the demolition project will be contained and removed from the project site for disposal and/or recycling. Lead-contaminated debris, such as paint chips, will be collected with a HEPA vacuum and handled as hazardous waste for disposal. Debris containment netting and blankets/sheeting will be installed under the bridge during demolition to catch and contain debris. A containment boom will be deployed during the demolition process to capture all floating debris to prevent downstream impacts.

12. During the 45-day public review period for the draft EA, Reclamation received two comments. The content of the first comment has been included in Finding 3 and the other comment expressed support for the project. Therefore the project is unlikely to become controversial.

CONCLUSIONS

Reclamation has fully evaluated the information and analysis contained in the EA as amended for the Removal of the Camp Nine Bridge and associated works. On the basis of these considerations, Reclamation has determined that the EA adequately and accurately addresses the environmental issues and impacts of the Proposed Action and finds that the Proposed Action is not a major federal action that will significantly impact the quality of the human environment. Therefore, an EIS is not required and will not be prepared for this project, based on the fact that there will be no long-term adverse impacts on the human environment resulting from the Demolition of the Camp Nine Bridge.

Chapter 1 – Purpose and Need for Action

1.1 Introduction

The Old Camp Nine Bridge is located on the upper arm of the Stanislaus River in Tuolumne and Calaveras Counties, California (**Map 1 and Figure 1**) and is approximately 200 feet downstream from Pacific Gas and Electric's (PG&E's) Stanislaus Afterbay Dam; approximately 0.5 mile downstream of the Stanislaus Powerhouse, also owned and operated by PG&E; and approximately 1.2 miles downstream of the Collierville Powerhouse, which is owned by Calaveras County Water District (CCWD) and operated by Northern California Power Authority (NCPA) (**Figure 2**).

The bridge was constructed by PG&E as part of Camp Nine Road, which was constructed during 1906 and 1907 to service the Stanislaus Powerhouse and the Town of Camp Nine. The original Old Camp Nine Bridge was constructed around 1907 (Jackson et al. 1976 and Theodoratus et al. 1976). It is speculated that the bridge was originally built to service the town of Camp Nine, which once stood where the Stanislaus Powerhouse is now located. The bridge is constructed of steel with wooden trusses supported by three spans. The bridge was substantially modified for use during construction of the new Stanislaus Powerhouse in 1961. Engineering drawings indicate that the bridge was updated with a new deck, approaches, and braces; and the main span was reinforced (PG&E 1960, 1961, and 1962). Hand-laid rock walls, which have been determined to be eligible for listing under the National Register of Historic Places (NRHP), are present on both sides of the bridge.

The New Melones Dam was built in the early 1980s as a part of the Bureau of Reclamation's (Reclamation's) Eastside Division of the Central Valley Project. Initial filling of the reservoir began in 1983. A new, concrete reinforced bridge was constructed by the U.S. Army Corps of Engineers (USACE) approximately 1 mile downstream from the old bridge and turned over to PG&E as a replacement for the Old Camp Nine Bridge (Figure 2). The Old Camp Nine Bridge was abandoned with the construction of the New Melones Reservoir, and the new bridge is the current access over the Stanislaus River to Former Forest Route (FR) 3N03. From the new bridge, Camp Nine Road was realigned on the west side of the river to access the Collierville Powerhouse at Clarks Flat as part of the North Fork Stanislaus River Project that was constructed between 1985 and 1990.

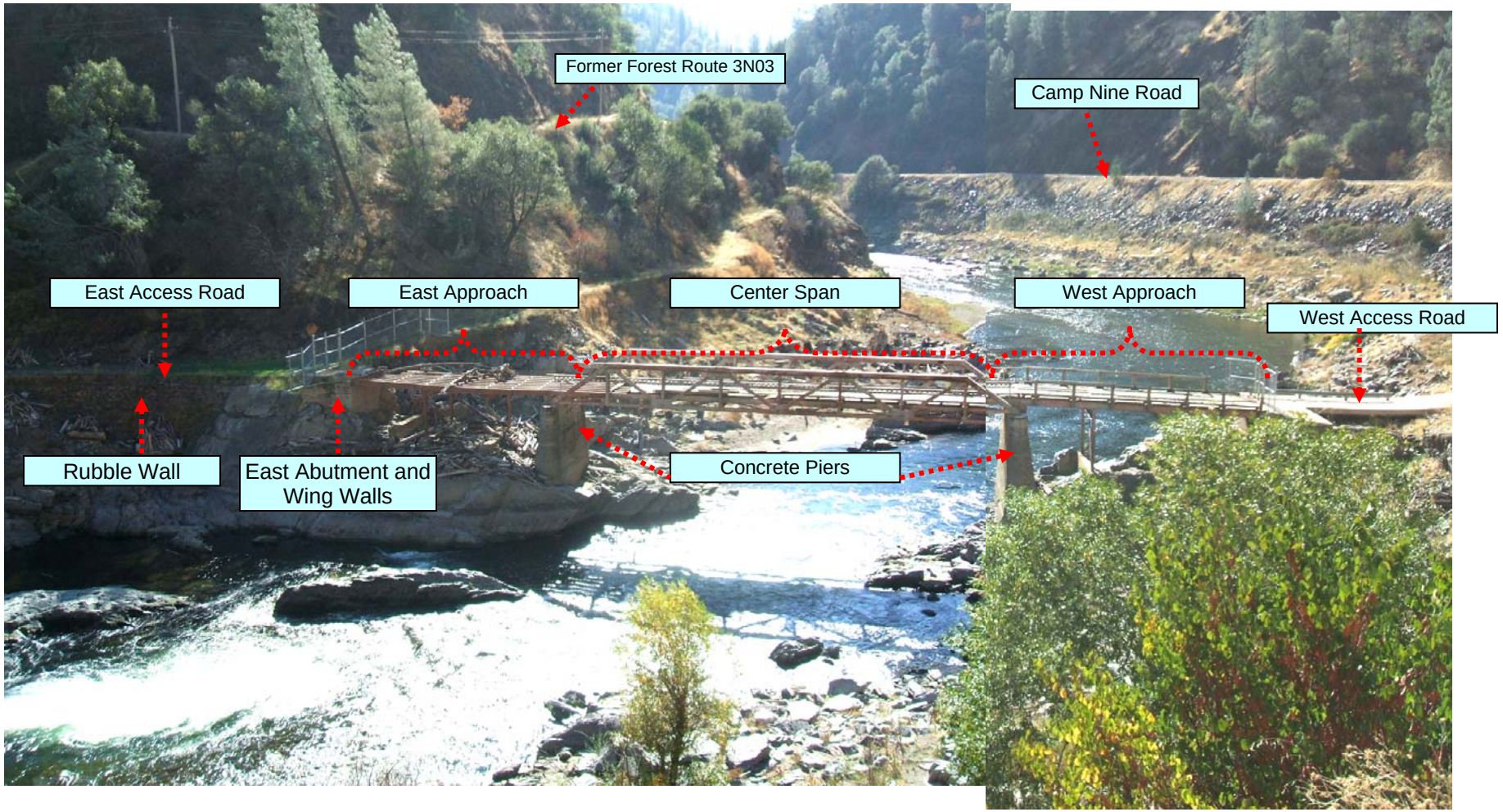
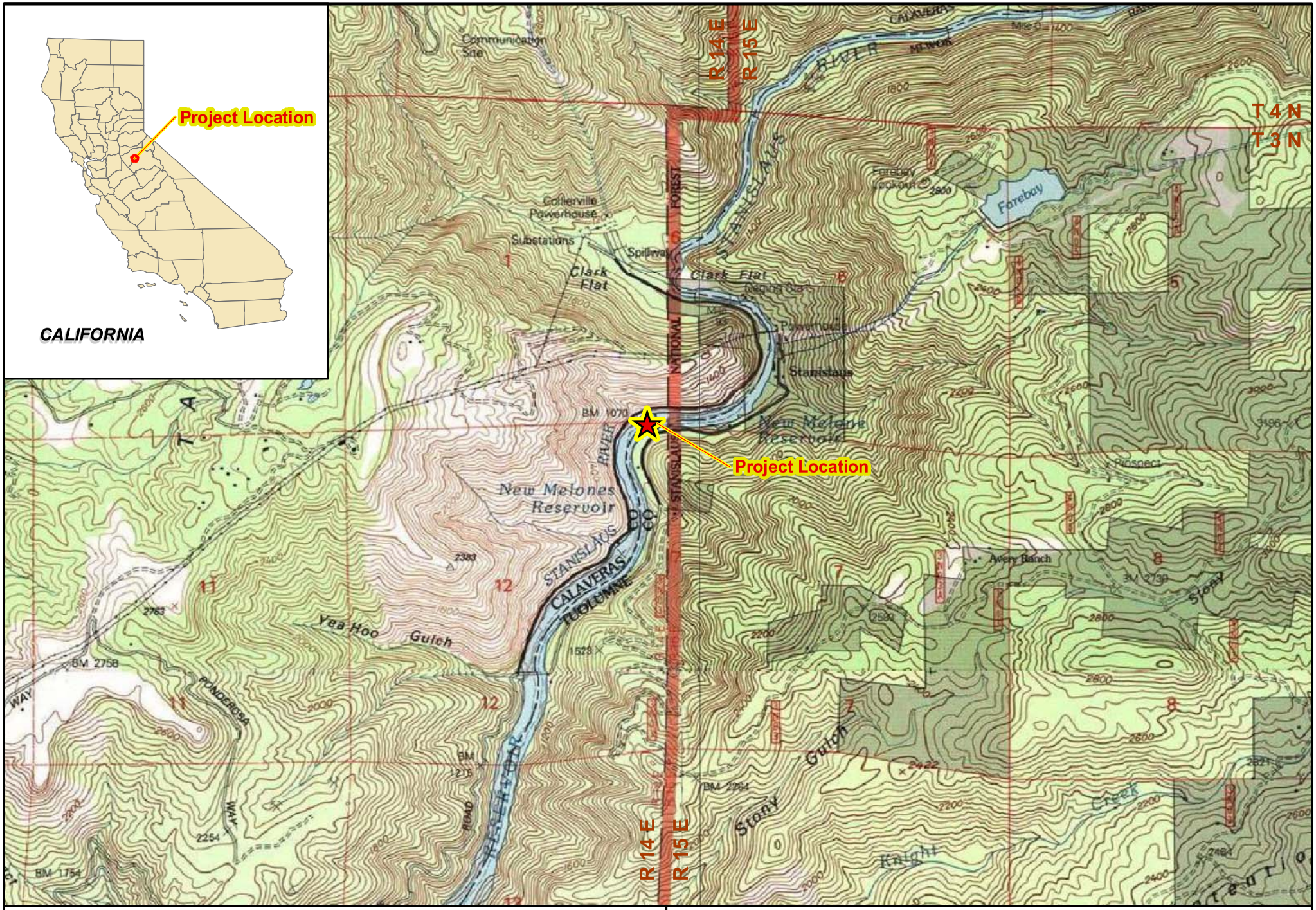


Figure 1 – Bridge Component Overview (Looking South / Downstream)

Figure 2 – Limits of Controlled Demolition



Old Camp Nine Bridge Removal EA Project

Map 1 - Project Location

Calaveras and Tuolumne Counties, California

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Notes:

Source of topographic background: ESRI ArcGIS Online, 2007 (corresponding to USGS quadrangles: Murphys, Stanislaus, Columbia, and Columbia SE, California).

N

0 1,000 2,000 Feet

When the New Melones Dam was completed in 1979, the operational plan for the lake was that the Old Camp Nine Bridge would be inundated except during low water years. Consequently, PG&E quitclaimed the Old Camp Nine Bridge to Reclamation on September 9, 1985. As a result, Reclamation is the current owner of the Old Camp Nine Bridge and surrounding property.

No plans were made for the upkeep and safety issues associated with leaving the bridge in place. Reservoir operations (e.g. electricity generation, agricultural irrigation, and water releases for habitat improvement) have resulted in the bridge being exposed above water for long periods of time each year except for the rare high water years (1996, 1997, and 2006). The bridge platform and abutments are damaged, disintegrating, or destroyed; concrete footings have been eroded by water; the bridge platform has been vandalized; and a portion of the bridge platform was destroyed by fire several years ago.

The Camp Nine Area, including the bridge, is used extensively for recreation, including fishing, swimming, hiking, kayaking, canoeing, and boating. Reclamation has determined that, in its current condition, the Old Camp Nine Bridge poses a significant and immediate hazard. If not corrected, this hazard could result in loss of life and/or serious injury to the public and/or extensive damage to boats recreating within the waterways in this area. The presence of lead-based paint on the surface of the steel components at concentrations ranging from 0.2 to 3.2 milligrams per square centimeter (mg/cm^2) (Accord 2007) is an added public health hazard associated with the Old Camp Nine Bridge. As an interim step to reduce the hazard potential, Reclamation placed fenced barriers across both bridge approaches in 2006. Hazard buoys were also attached to the bridge truss, which at that time was several feet underwater, to warn approaching vessels of the underwater hazard. These barriers may prevent the public from accessing the bridge by walking, but do not prevent access via other means, and can be easily vandalized/compromised due to the bridge's remote location. Both the bridge and safety barriers present a navigation hazard should reservoir levels again inundate the bridge.

The bridge's condition was surveyed by Reclamation engineers in July 2004 (Reclamation 2004). The engineering report strongly recommended removal of the bridge due to safety hazards present at the site. These recommendations were made based on the structural conditions of the bridge deck, underside of the main span, trusses, and girder members. Erosion around the southeast abutments and northwest approach also contributed to this opinion. Since this report was completed in 2004, hydrologic conditions, including complete inundation of the bridge for several months in 2006, have caused extensive additional damage to the bridge supports, abutments, and deck.

The potential for the public to access the bridge represents an extreme hazard due to the eroded abutments and compromised supports (which could cause collapse),

gaping holes, missing deck, broken railings, confirmed presence of lead-based paint, and other safety hazards on the bridge itself.

This Environmental Assessment has been prepared in compliance with the National Environmental Policy Act (NEPA) to evaluate potential environmental issues and impacts associated with removal of the Old Camp Nine Bridge. Reclamation is the lead agency responsible for preparing this EA and is the basis for the determination that removal of the Old Camp Nine Bridge is not a major federal action that will significantly impact the quality of the human environment. Therefore, an EIS is not required and will not be prepared for this project, based on the fact that there will be no long-term adverse impacts on the human environment resulting from the demolition of the Camp Nine Bridge.

1.2 Purpose and Need

Structural degradation and erosion described in the report on the Camp Nine Bridge's condition published in August 2004, the complete inundation of the bridge for several months in 2006, and the presence of lead based paint on the surface of the steel components, have lead Reclamation to determine that the Old Camp Nine Bridge poses a significant and immediate hazard to public safety. In addition, the potential for catastrophic failure of the bridge and subsequent release of sediment and lead into the Stanislaus River watershed as well as the use of Camp Nine Area for recreation purposes increases the need for Reclamation to address the conditions of the bridge expediently. If not corrected, these hazards could result in serious injury, resource degradation, and/or extensive damage to boats recreating within the waterways in this area. Therefore the purpose and need of this project is to remove the Old Camp Nine Bridge in such a way as to minimize impacts to recreation, water quality, and fish and wildlife resources and thereby eliminate this hazard to public health and safety in a responsible manner. This project will also complement removal of the Stanislaus Afterbay Dam, which has been proposed as part of Federal Energy and Regulatory Commission [FERC] Spring Gap-Stanislaus Project #2130). Removal of the Stanislaus Afterbay Dam is also intended to minimize impacts to recreation, water quality, and fish and wildlife resources as well has eliminate a hazard to public health and safety.

Chapter 2 – Alternatives

This section presents two alternatives (No Action and Proposed Action) for the Old Camp Nine Bridge Removal Project (the project). Under both alternatives, the bridge would be lost due to either catastrophic collapse under the No Action alternative or controlled removal under the Proposed Action. Under the No Action alternative, the Old Camp Nine Bridge would remain in its existing condition without maintenance or repair. It is assumed, however, that the continued deterioration of the bridge would result in its eventual uncontrolled collapse. The Proposed Action is based on the Purpose and Need for the project and conforms to the New Melones Lake Master Plan, August 1976. Under the Proposed Action, the Old Camp Nine Bridge would be removed using controlled demolition techniques. Because both alternatives would result in the loss of the bridge, the primary difference between these alternatives is how the bridge would be removed and its effect on other resources in the immediate vicinity.

2.1 Overview of the Old Camp Nine Bridge Design

Old Camp Nine Bridge is a steel bridge consisting of three spans laid out in an east-west orientation above the Stanislaus River (**Figures 1 and 2**). A bridge component overview is shown in **Figure 1**. The total length of the bridge is about 202 feet between the abutments on each side of the river. The center span is about 102 feet long and 16 feet wide. The center span is constructed of a wooden deck supported by eight steel girders and seven floor beams that were connected to two Warren trusses seated on two concrete piers. The concrete piers, each about 20 to 25 feet tall, 26 feet wide, and 4.5 feet thick, are constructed directly on the bedrock outcrop on each side of the Stanislaus River (**Appendix A, Photo Page 1**). Two 50-foot-long approaches connect the center span of the bridge to the access road. The approaches each have eight steel girders and seven floor beams that are supported by two steel frames bolted to two concrete footings built on the bedrock outcrops (**Appendix A, Photo Page 2**). The wooden deck on the east approach is entirely missing and only partially covers the west approach (**Appendix A, Photo Page 3**).

2.2 No Action Alternative

Under this alternative, the bridge will be left as is. Although the steel structures and the two piers supporting the center span appear to be intact, the wooden deck is too deteriorated to allow any vehicle or pedestrian traffic. The steel frames that support the two approaches have been damaged considerably by passing debris carried by river flow under high water conditions. The bridge in its current structural condition poses a safety hazard to recreational users. The bridge is

subject to total inundation during periods of high flow in the Stanislaus River and/or high water levels in the New Melones Reservoir. In the future, these events will further damage the condition of the bridge and lead to its inevitable collapse. Based on the riverbed condition at the site (as deep as 50 feet from the bottom of the existing concrete pier to the bottom of the riverbed), it will be very difficult to retrieve the bridge once it is collapsed. Removal of debris after a bridge collapse and the presence of this debris in the river would pose significantly higher safety risks to recreational users and the overall environment conditions at the site.

2.3 Proposed Action (Controlled Demolition)

The objective of the Proposed Action is to demolish and remove the bridge and approaches in a manner that is safe for the environment and human health and is compliant with applicable permit and regulatory requirements. The controlled demolition includes removing all steel structures, guard rails, and decking materials associated with the bridge. The two concrete piers and six concrete footings would be removed to the bedrock level. In addition, the existing concrete abutment and wing walls associated with the east approach would be removed. However, the east rock wall associated with the approach road, and west rock wall associated with the road foundation (including the abutment, wing walls, and concrete pad) will be preserved because of their value as historic resources. The limits of the controlled demolition are depicted in **Figure 2**.

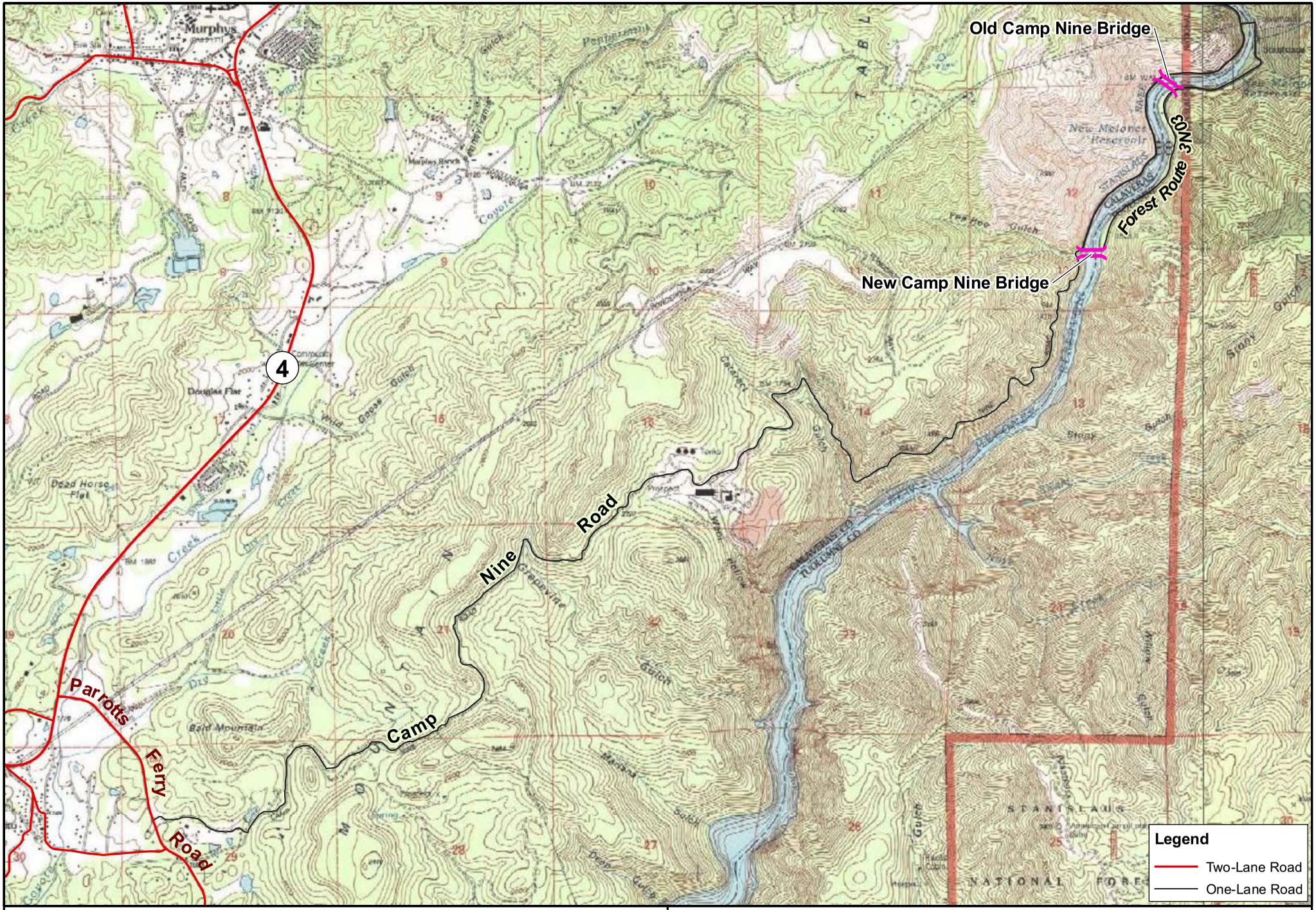
The controlled demolition is divided into several steps and is discussed in the following sections:

- Site Access and Access Control
- Staging of Work
- Bridge Demolition
- Transportation and Disposal of Demolition Wastes
- Traffic Control
- Site Restoration
- Demolition Schedule

Environmental commitments that will be implemented under the Proposed Action are included in the following sections and are summarized in **Appendix B**.

2.3.1 Site Access and Access Control

Camp Nine Road provides the primary access to the site from the nearest major highway, East Highway 4 (**Map 2**). The majority of Camp Nine Road was built as an asphalt-concrete paved one-lane road with unpaved shoulders for passing traffic. The Camp Nine Road pavement is in good condition for allowing construction traffic related to this project. However, the narrow, winding road



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Old Camp Nine Bridge Removal EA Project

Map 2 - Access Road

Calaveras and Tuolumne Counties, California

Notes:

Source of topographic background: ESRI ArcGIS Online, 2007 (corresponding to USGS quadrangles: Murphys, Stanislaus, Columbia, and Columbia SE, California).

N

0 1,000 2,000 3,000 Feet

condition will likely restrict the vehicle length to no longer than 40 feet and no wider than the minimum passing width of the road.

There is currently no vehicular access between the west approach of the Old Camp Nine Bridge and Camp Nine Road because it was re-routed after the New Camp Nine Bridge was constructed in the early 1970s to replace the old bridge (**Map 4**). Currently, there is a steep slope (40-foot drop) and rough terrain between the two locations. To minimize alteration of the existing site grade, there is no plan to construct a temporary access road for direct vehicular access to the west side. If necessary, a crane will be used to lift equipment and/or materials from Camp Nine Road to the proposed west staging area adjacent to the bridge. Personnel will access these areas via existing footpaths.

Vehicular access to the west side of the site will be via the newer section of the Camp Nine Road from the intersection of the New Camp Nine Bridge north to NCPA's Collierville Powerplant (approximately 1 mile north of the Old Camp Nine Bridge). This portion of the road was constructed in the early 1990s when the powerplant was built and is maintained in excellent condition. Vehicular access to the east side of the site will be via the new Camp Nine Bridge through Former FR 3N03 and the smaller existing access road leading to the east approach (**Map 4**). Both Former FR 3N03 and the access roads are paved one-lane roads. Former FR 3N03 also provides access to the Stanislaus Powerplant, which is operated by PG&E about 0.5 mile north and upstream of the site. The road is maintained in good condition. The pavement of the small access road is in fair condition and will be maintained from any further deterioration on an as-needed basis throughout the demolition phase. Due to the tight turning radius from Former FR 3N03 to the east access road, larger vehicles will proceed north approximately 0.5 mile to the large equipment turnaround area near the Stanislaus Powerhouse (**Map 3**) and use this turnaround area (**Appendix A, Photo Page 4**) for reversing the driving direction. This turnaround area is also large enough for staging trucks, if necessary, during off-site disposal activities (see Sections 2.3.4 and 2.3.5 for further discussions on transportation and traffic control). On the west side of the project site, trucks will use the Staging Area for Crane and Load-out as a turnaround area (**Appendix A, Photo Page 6**).

The Camp Nine Bridge was inspected by Reclamation in July 2004 (Reclamation 2004) to determine its condition. In general, the steel girders, cross beams, and truss assemblies are intact. However, the steel frames that support the two approaches are partially damaged (**Appendix A, Photo Page 1**) and, in its current condition, the bridge would not likely support any construction equipment.

Therefore, structural reinforcements will be installed to strengthen the approaches and main span, as needed, for allowing light demolition traffic on the bridge.

Old Camp Nine Bridge Removal EA Project

Map 3 - Project Vicinity

Calaveras and Tuolumne Counties, California

Notes:

Source of aerial background: ESRI ArcGIS Online, 2007 (corresponding to USGS quadrangles: Murphys, Stanislaus, Columbia, and Columbia SE, California).

N

0 500 1,000 Feet

According to construction notes on engineering drawings associated with the bridge construction, the approaches were built for a 30-ton traffic load. The structural reinforcement will include additional vertical and lateral steel frame and/or plate supports to the existing steel frames and lateral bracing structures. Light-duty steel plates or mats will be used to provide temporary decking to support construction equipment on the bridge.

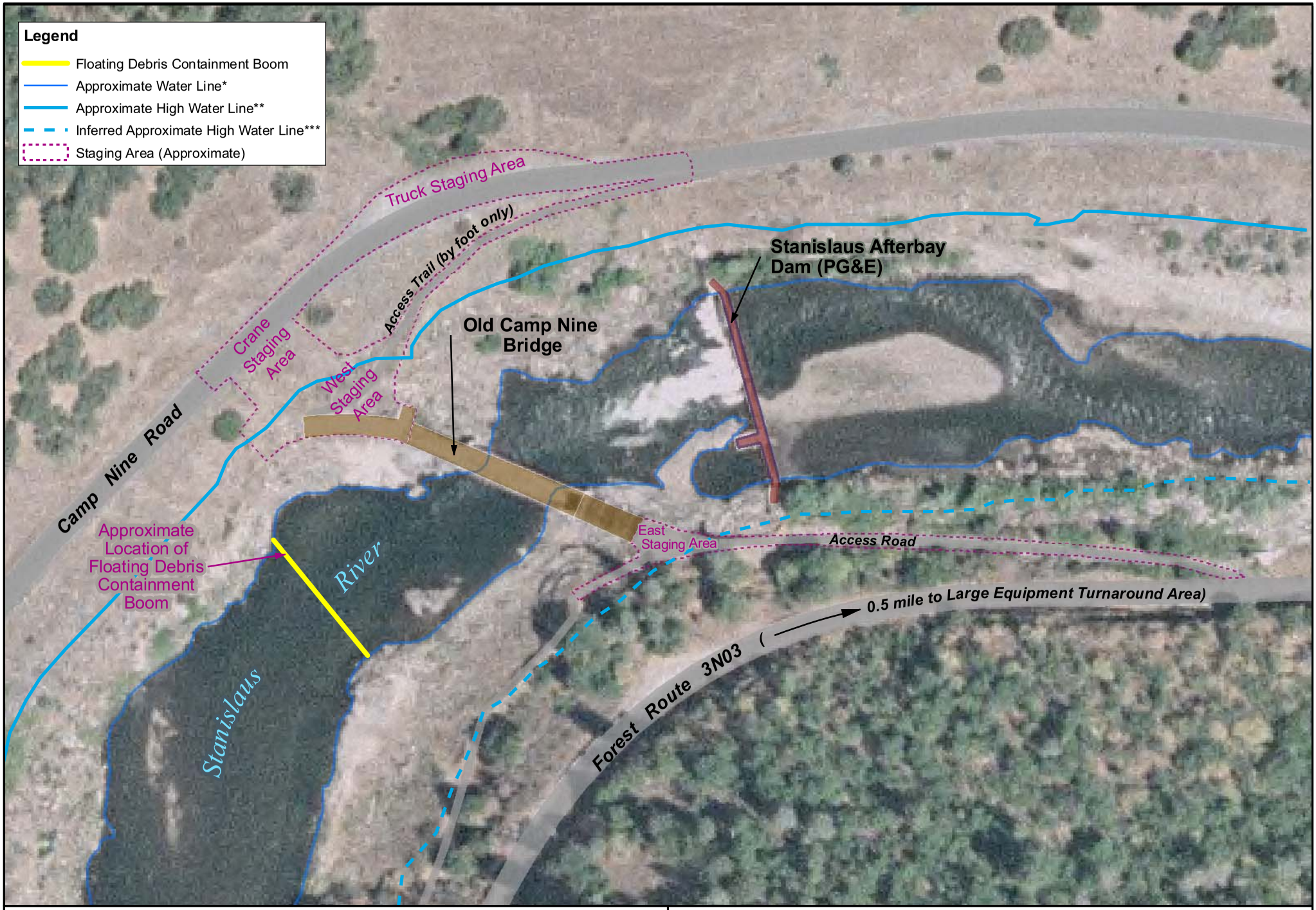
During the demolition period, warning signs such as "Demolition Activities XXX Feet Ahead" will be posted near the site access road and any staging areas to warn passing traffic of demolition activities and associated traffic. A gated fence will be installed at the intersection of the east access road and Former FR 3N03 to control vehicular access to the site. The existing fences on the bridge will be maintained to restrict vehicular and pedestrian access to the bridge. Access by recreationists who may boat or walk into the vicinity while work is being performed will be controlled by posting signs upstream and downstream of the bridge depending on lake elevation and the level of public use of the area at the time of the demolition. The peak recreation season ends September 30, but use continues as long as the weather is warm.

Reclamation has developed environmental commitments that will be implemented during construction to avoid impacting the hand-laid rock walls that are present on both sides of the bridge. These measures will include avoiding the hand-laid rock wall structures by only allowing smaller equipment to access the site via the access points supported by the rock walls, using cranes to directly place heavier equipment on staging areas adjacent to the bridge, and establishing buffer zones and appropriate flagging so that contractors avoid inadvertently impacting the rock walls during construction.

2.3.2 Staging of Work

Staging areas for parking demolition equipment, storing materials, and stockpiling and loading out demolition debris will be established on each side of the bridge (**Map 4**). Staging areas will be used during various phases of the demolition process as needed. The east and west staging areas are discussed in the following sections.

The existing access road off of Former FR 3N03 will be used as the primary laydown and staging area (east staging area) for parking equipment, storing materials, and stockpiling and loading out demolition debris near the east approach for the east staging area (**Map 4** and **Appendix A, Photo Page 5**). The access road is about 16 feet wide at the narrowest point and about 250 feet long. The equipment likely to be staged at the site includes a rough-terrain crane, a multi-terrain loader, a forklift, three tool trucks, a dump truck, compressors, generators, portable toilets, and a storage container box for storing tools. All equipment will be staged off of the main road to keep it clear for emergency



Old Camp Nine Bridge Removal EA Project

Map 4 - Project Area

Calaveras and Tuolumne Counties, California

Notes for Legend

* Digitized from the 2002 color aerial photo (used as background for the main map, source: Calaveras County, CA)

** Digitized from the July-1-2006 satellite photo from Digital Globe, Inc.

*** Inferred from the July-1-2006 satellite photo from Digital Globe, Inc.

N

0 50 100 Feet

vehicle and powerplant vehicle access. No grading activities are planned in the east staging area; however, minimal vegetation removal (mainly trimming overgrown trees and shrubs) will be required in the east staging area and along the east access road (**Appendix A, Photo Page 5**).

The flat areas immediately next to the Camp Nine Road (**Appendix A, Photo Page 6**) will be used as the equipment laydown area as needed for the west staging area. The area will be used for storing smaller equipment such as compressors, generators, a storage container box, and a light-duty crane that will be lifted in via crane (for large equipment) from Camp Nine Road or carried in from the foot access road (for smaller equipment). The area will also be used to stage demolition work associated with concrete pier and foundation removal after the bridge is removed. The demolished concrete debris will be staged in this area and then lifted out by a crane staged at Camp Nine Road (**Appendix A, Photo Page 6**) and loaded into a dump truck for transporting to the disposal site. The proposed west staging area (**Map 4**) covers an area of about 150 feet by 100 feet. A portion of Camp Nine Road will be used for staging the crane and the adjacent roadside turnaround area for staging dump trucks (**Map 4**) during load-out operation; however, the road will be left open for public, powerplant, and emergency traffic. Public access to materials and equipment will be controlled by temporary fencing and signage.

No grading activities, other than smoothing out the already flat surface in the west staging area, are planned. The existing concrete abutment on the west side of the project area and the half-paved road will be preserved.

2.3.3 Bridge Demolition

Once the site access and staging areas are established, the bridge demolition will be initiated by removing all existing wooden decks and guard rails to expose the underlying steel structures. The wooden deck will be saw-cut into manageable sizes and transported to the east staging area by forklift or loaders. Light-duty steel plates or mats will be used as a temporary traffic deck after the wooden deck is removed to allow demolition equipment to operate on the bridge.

Prior to the demolition, debris containment netting and blankets/sheeting will be installed under the bridge to capture wooden debris generated during the removal. A floating debris containment boom will be installed at a downstream location near the work area to capture any wooden debris that escapes the debris containment device (**Map 4**). The debris boom will be deployed in a shallow crossing so that accumulated wooden debris can be periodically cleaned out by hand throughout the demolition process. The debris boom will remain in place while the wood deck is removed, an activity which is estimated to take approximately 1 week. The floating debris boom will be visible on the surface and identifies the work area limit to restrict public access. Additional warning signs will be posted, if necessary, to restrict public access to the debris collection area.

After the wooden deck is fully removed, the demolition of steel structures will be conducted systematically by dismembering various components of the bridge so that each component can be safely separated and removed from other parts of the bridge. The bridge demolition process is summarized in sequence of action and is discussed below:

- Demolition of steel girders and cross beams of west approach
- Demolition of concrete footing and steel frame of west approach
- Demolition of steel girders and cross beams of center span
- Demolition of trusses
- Demolition of steel girders, cross beams, and steel frame of east approach
- Demolition of concrete pier and footing, abutment, and wing wall of east approach (leaving historic rock wall and approach road intact)
- Demolition of concrete pier of west approach (leaving concrete abutment, wing walls, rock wall and concrete slab intact)
- Site cleanup and restoration

In general, the entire west approach will be demolished first. The girders and cross beams will be cut into manageable sizes and removed to the east staging area with a forklift or loader. Then the girders and cross beams of the center span will be removed. The two Warren trusses will then be demolished by gradually removing the interior upright and lateral members to reduce the total weight of the truss while maintaining the overall stability of the truss. The top and bottom cords of the truss will then be removed as two individual pieces, respectively, with a crane from the east approach. Finally, the east approach will be removed using a crane from the east access road. It is estimated that the two steel approaches each weigh about 14 tons, the steel girders and cross beams of the center span weigh about 25 tons, and the two Warren trusses each weigh about 10 tons. The separated steel components will all be transported to the east staging area (**Map 4** and **Appendix A, Photo Page 5**) for subsequent transfer to an off-site steel recycling facility for final disposal. The steel may be further cut into smaller pieces at the staging area so that they can fit into the transportation device.

The steel structure will be dismembered through torch cutting to minimize the generation of flying debris. Debris containment netting and fire-proof blankets will be installed to collect cutting debris. The steel structures were reportedly coated with lead-based primer and/or paint. Torch-cutting slag, paint chips, and any lead-contaminated debris will be collected with a high-efficiency particulate air (HEPA) vacuum device and handled as hazardous waste for disposal. Lead-paint chips, if any, will be collected with a HEPA vacuum, containerized in a plastic bucket, and profiled and disposed of as hazardous waste. There will be waste profiling and manifesting per Resource Conservation Recovery Act (RCRA) waste or Cal-Haz waste disposal regulations. Lead paint will not be removed from steel pieces because they will all be melted in a furnace at a recycling facility. Workers will be protected with air purifying respirators or

supplied air respirators in accordance with the site health and safety plan when performing torch cutting and waste collection activities. It is assumed that no asbestos is contained in the bridge components. If asbestos is discovered during the demolition process, the appropriate measures will be taken to remove it.

The demolition of concrete piers and footings will be performed using hydraulic splitting techniques or a non-hazardous expansive compound. Both methods are commonly used in operations that require precision splitting or breaking of concrete structures into manageable pieces for removal. These two methods also greatly minimize noise and debris that are usually associated with other conventional breaking methods. A debris fence will be installed along the demolition area prior to the breaking process to contain the debris. Debris generated during the demolition process will be swept up and cleaned daily. The broken concrete structures on the east bank will be removed with a crane from the east access road. The broken concrete structures on the west bank will be transferred by forklift (which will be lifted in by crane) to the west staging area and then lifted out with a crane from Camp Nine Road (**Appendix A, Photo Page 5**). The concrete debris will then be directly loaded into a dump truck and transported to a concrete recycling facility for final disposal.

2.3.4 Transportation and Disposal of Demolition Wastes

The steel and concrete debris will be transported to recycling facilities. Lead paint will not be removed from steel debris because it will be transported to a recycling facility and melted in a furnace. Other demolition wastes will be sent to a landfill for final disposal. Lead is anticipated to be the only hazardous waste generated during demolition. Lead waste would be transported by a licensed waste transporter to the appropriate hazardous waste disposal site. Other demolition materials are non-hazardous and would not require any special permits for transportation. High-side dump trucks, such as 10-wheeler end-dump trucks, will be used to haul the majority of concrete and demolition waste. The steel debris will be hauled out by semi-trucks with 40-yard trailer-mount disposal bins. The disposal activities will be conducted in batches to minimize traffic impacts to the area. The following table summarizes how the materials removal will be performed.

Table 1: Summary of Debris Removal

Material	Truckloads	Hours
Steel bridge (75 tons)	15 (5 to 10 tons each)	8
Concrete piers and footings (630 tons)	70 (10 to 12 tons each)	37
Miscellaneous debris (50 tons)		
TOTAL	**85**	**45**

It is anticipated that 15 to 25 truckloads can be hauled in 1 workday (8 hours). Therefore, it is anticipated that the total number of workdays to haul 85 truckloads is approximately 5.5 workdays (45 hours). Departure of the disposal trucks will be staggered so that there is plenty of room for passing traffic on Camp Nine Road.

2.3.5 Traffic Control

The majority of the Camp Nine Road is isolated and has no local residential traffic with the exception of the first 3 miles off Parrotts Ferry Road. Most traffic on this road is from the operation and maintenance of the two hydropower plants upstream of the Old Camp Nine Bridge (**Map 3**). Additionally, during the summer recreation season, the road can experience heavy traffic by the public traveling to events held at Avery Ranch (accessed via Former FR 3N03) and visitors to the Camp Nine Recreation Area. Signs will be posted at the intersection of Parrotts Ferry Road and Camp Nine Road indicating truck traffic activities on the days when disposal traffic is expected.

The timing of haul activities will be coordinated with local hydroelectric plant operators to minimize the potential for vehicle conflicts. The local residents and power plant operators that may be impacted by disposal traffic will be notified at the beginning of the project and also at least 48 hours prior to the planned disposal activities to avoid any conflict. The truckers will all be equipped with two-way (citizen's band) C-B radios for instant communication in areas with C-B radio signals. In areas without C-B radio signals and in narrow sections of the road (dangerous passing areas), manual traffic control with walkie-talkie radio communications will be implemented.

2.3.6 Site Restoration

As discussed above, minimum earthwork or grading activities will be performed during implementation of the project. The on-site traffic will be limited to the three staging areas, which will be continuously maintained throughout the demolition process. Best management practices (BMPs), such as placement of sand bags and silt fences along the perimeter of staging areas, will be implemented at the site in accordance with a Storm Water Pollution Prevention Plan (SWPPP) that will be developed prior to the initiation of demolition activities. At the end of the demolition phase, all demolition debris and BMP devices will be removed from the site. Regrading of the site is not anticipated to be necessary; however, the site grade will be restored and revegetated if needed to promote drainage and minimize potential erosion.

2.3.7 Health and Safety

A number of safety measures will be implemented to minimize this risk to the maximum extent. Safety "tailgate" meetings will be held at the start of each workday to discuss potential hazards that might be encountered for that day and lessons learned from previous days. A project-specific health and safety manual will be developed, and all workers will be required to read and acknowledge their understanding of this plan. During periods when heavy equipment is moving large structures, audible alarms will be sounded to ensure that all workers vacate these areas and move to designated safe areas. Each worker will be empowered to "stop work" at any time should they feel that unsafe conditions exist. If work is stopped, a meeting will be held with the project manager and workers to identify a way to address this hazard and proceed safely with the task.

2.3.8 Fire Prevention and Management Plan

During the bridge demolition process, the structural members of the bridge will be removed mainly through torch cutting. Fire suppression equipment, a no smoking policy, shutdown devices, and other safety measures will be implemented during construction to minimize the risk of fire. A hot work permit will be established for all works associated with torch cutting to prevent fire hazard. In general, the hot work permit will provide guidelines and detailed requirements for fire prevention including, but not limited to: clearing hot work areas and establishment of these areas at a specific safe distance from flammable or combustible materials; identifying all sources of ignition and establishing specific fire arrest and control measures; installing fire detection and suppressing equipments, such as fire extinguishers and water spray mechanisms; and establishing fire watch procedures, if necessary, to assure that the work area is adequately monitored during and after work to assure that the specific watch areas are free of fire.

In addition to hot work permit, fire prevention and control in the general work area will be implemented so construction activities do not pose any fire hazard. In general, the work area and daily work will be organized so that any potential source of ignition (such as hot surfaces and/or exhaust vents from equipment, tools, vehicles, and other sources) do not come into contact with potential sources of combustible materials (such as dry vegetation, combustible demolition debris, and other on-site flammable materials). Smoking on site will be restricted to a designated area. Fire extinguishers will be installed in all areas with potential sources of ignition.

Because the site is located next to a river, a sump pump equipped with a fire hose with an adequate extension will be available to be used as the primary fire suppression and control equipment. During extreme fire hazard condition (i.e., the red flag alert), the work area will either be shut down (depending on type of construction activities), or adequately wetted down through water spray to minimize fire hazard. Such fire management practice will be implemented through daily coordination with the Reclamation project personnel.

2.3.9 Demolition Schedule

The bridge is subject to inundation during intense stormwater events or high reservoir conditions. Therefore, the demolition will be performed only in low water conditions. Low water conditions typically occur between June and November when both concrete piers are above water. A limited operating period (LOP) will be established to avoid the potential for demolition activities to occur during the bald eagle breeding season. No demolition activities will occur from December to June to avoid the bald eagle breeding season. From July through November, demolition activities may proceed without interfering with the bald eagle breeding season. Under the current plan, it is estimated that demolition activities can be completed in about 3 months.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

The following sections describe several alternatives that were considered by Reclamation but eliminated from further analysis.

2.4.1 Restore Bridge as a Vehicle Bridge

Reclamation considered complete restoration of the bridge as a vehicle bridge. This alternative was considered but dismissed due to the bridge's poor condition, high cost, potential to continue to be inundated by water because of its location, and time required to design and complete the restoration. Additionally, if the bridge were rehabilitated, routine operation and maintenance activities would be associated with the structure and, following inundations of the structure, would require inspection. All damage caused by inundations would also require repair prior to resuming public use of the bridge.

2.4.2 Modify the Bridge for Pedestrian Use Only

Reclamation considered modifying the bridge for pedestrian use only. This alternative was considered but dismissed due to the high cost and time required to design and complete the restoration. Additionally, if the bridge were rehabilitated, routine operation and maintenance activities would be associated with the structure and, following inundations of the structure, would require inspection. All damage caused by inundations would also require repair prior to resuming public use of the bridge. Even with routine inspection and maintenance, the bridge would continue to represent a liability for Reclamation.

2.4.3 Restrict Access to the Bridge by Removing the Left and Right Approach Spans

Reclamation considered restricting access to the bridge by removing the left and right approach spans. While this alternative would restrict access to the bridge from the east and west banks, it was dismissed because it would still pose a public health and safety risk at high water levels, would continue to be inundated, and would eventually be destroyed in a catastrophic event.

2.4.4 Restrict Access to the Bridge by Fencing Each End of the Bridge

Reclamation has already implemented this alternative in order to restrict public access to the structure; however, it is not sufficient to protect public health and safety for several reasons. By allowing the bridge to remain in place, the potential for serious injury or death as a result of the bridge's condition will continue to exist at the site. Additionally, fencing requires frequent monitoring and replacement following high river flows and acts of vandalism. Currently, the razor wire on top of the fences poses a safety hazard, especially at high water levels. While this alternative currently restricts access to the bridge from the east and west banks, it does not meet the purpose and need because it still poses a public

health and safety risk at high water levels, the bridge would continue to be inundated, and it would eventually be destroyed in a catastrophic event.

2.4.5 West Access Road Demolition

Reclamation considered removing the western abutment, wing walls, apron and guard rail (**Appendix A, Photo Page 7**). This alternative was considered because removal of these structures would further minimize a potential public health and safety hazard and also would improve the aesthetic quality of the project site. However, removal of these structures would be a significant effort, would have high cost, and would impact the rock wall associated with the former Camp Nine Road. The concrete slab is structurally integrated with the abutment and the rock wall of the former Camp Nine Road (**Appendix A, Photo Page 7**). Removal of the slab would impact the integrity of the rock wall, as well as would require significantly more site work, equipment, staging and transportation/haul-out. The trade off of having some level of risk to safety by leaving the structures in place versus the value of retaining a structure with historic significance (rock wall of former Camp Nine Road, remnant of old bridge) was evaluated by Reclamation. Reclamation ultimately decided to leave the western approach structure in place to protect the historic rock wall and to minimize potential impacts and costs associated with the Old Camp Nine Bridge removal. Safety concerns will be addressed through management actions, such as signage, buoys, and barriers.

Chapter 3 – Affected Environment and Environmental Consequences

3.1 Introduction

National Environmental Policy Act (NEPA) regulations direct agencies to succinctly describe the environment that may be affected by the alternatives under consideration. This chapter describes the existing physical, biological, social, and economic components of the project area (affected environment) and the environmental consequences that have the potential to occur by implementing any of the alternatives. The following resources are covered:

- Air quality
- Groundwater
- Surface water
- Biological resources including vegetation, wildlife, and fisheries
- Cultural and historic resources
- Environmental Justice
- Indian Trust Assets
- Health and safety
- Land use
- Socioeconomics
- Soils and Geology
- Traffic and noise
- Visual resources

3.2 Regional Setting

The Old Camp Nine Bridge Removal Project area is located within the Sierra Nevada Mountain Range of north-central California. The project location typically experiences warm, dry summers and cool, wet winters, with temperatures ranging from 85 to 105 degrees Fahrenheit (ºF) in the summer and 25 to 45 ºF in the winter. The mean precipitation in this area (New Melones lake) is 31.72 inches, most of which falls as rainfall during the December to April period. Air quality is excellent, and the area experiences a generally moderate eastward wind and weather flow pattern. The deeply incised Stanislaus River Canyon dominates the topography with a difference of elevation of 2,000 feet from the ridge top to the river. Most of the river basin (including the area surrounding the project area) is forested, and major land uses include recreation, conservation, timbering, and grazing.

3.3 Environmental Assessment Methodology

This section describes the methodology used to predict impacts to resource areas. The definition of an environmental impact is the change in condition of the resource or environment under examination caused by implementation of the alternative. Impacts are analyzed by considering the action to the resource and the effect to the resource. The magnitude or type and degree of impacts were analyzed by considering the following factors:

- Type (beneficial or adverse, direct or indirect),
- Context (site-specific, local, regional),
- Duration and timing (short- or long-term), and
- Intensity (negligible, minor, moderate, or major)

For the environmental impact analysis, the following definitions were applied:

- Beneficial impact - a positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
- Adverse impact - in the context of most resources, an adverse impact refers to a change that moves the resource away from a desired condition or detracts from its appearance or condition.
- Direct impact - an effect that is caused by an action and occurs in the same time and place.
- Indirect impact - an effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable.
- Short-term impact - an effect that, within a short period, would no longer be detectable as the resource is returned to its pre-disturbance condition or appearance, generally less than 5 years.
- Long-term impact - a change in a resource or its condition that does not return the resource to pre-disturbance condition or appearance and for all practical purposes is considered permanent.
- Site-specific impact - the action would affect areas only within the project site.
- Local impact - the action would affect areas within the project site and land adjacent to the project site.
- Regional impact - the action would affect the New Melones Lake Area, land adjacent to the New Melones Lake Area, and surrounding communities.

For each resource, potential impacts were evaluated and then classified into one of the following categories:

- Positive environmental effect (P) - a positive change in the condition or appearance of the resource.

- Less than significant environmental effect (L) – there is no evidence that an effect to the resource would be significant.
- Potentially significant impact (S) – there is substantial evidence that the effect to a resource would be significant.
- No environmental effect (N) – there is no evidence that implementation of the alternative would have a measurable effect on the resource (including any positive, less than significant, or significant effect to the resource).

3.4 Summary of Impacts

The following table summarizes the overall environmental impacts for each resource described in the affected environment.

Table 2: Summary of Environmental Impacts by Resource

Resource	No Action	Proposed Action
Air Quality	S	Short Term: L Long Term: L
Groundwater	N	L
Surface Water	Short-term: S Long-term: S	Short-term: L Long-term: P
Vegetation	General: L Federally and State Listed: N	General Short Term: L General Long Term: P Federally Listed: “no effect” State Listed Short Term: N State Listed Long Term: N
Wildlife	General: L Federally and State Listed: N	General Short Term: L General Long Term: P Federally Listed: “no effect” State Listed Short Term: L State Listed Long Term: P
Fisheries	Short Term: L Long Term: S	General Short Term: N General Long Term: P Federally Listed: “no effect” State Listed Short Term: N State Listed Long Term: N
Wildfire	Short Term: L Long Term: L	Short Term: L Long Term: L
Cultural and Historic Resources	N	L
Environmental Justice	N	N
Indian Trust Assets	N	N
Health and Safety	S	Short-term: L Long-term: P
Land Use	S	Short-term: L Long-term: P Regional: N
Socioeconomics	N	Short-term: P Long-term: N
Soils and Geology	S	Short-term: L Long-term: P

Resource	No Action	Proposed Action
Traffic and Noise	Traffic: N Noise: N	Short-term Traffic: L Long-Term Traffic: N Noise: L
Visual Resources	S	Short-Term: L Long-Term: P
Cumulative Impacts	S	Short Term: L Long Term: P

P = Positive Environmental Effect, L = Less than Significant Environmental Effect, S = Potentially Significant Impact, N = No Environmental Effect

3.5 Air Quality

The region of influence (ROI), where potential air quality impacts can occur, is within the immediate vicinity of the project area, staging areas, and access roads, all of which are located within Calaveras and Tuolumne Counties.

3.5.1 Affected Environment

The State of California is divided into air basins that are defined generally by their meteorological and topographical characteristics. The Old Camp Nine Bridge is located in Tuolumne and Calaveras Counties, both of which are within the Mountain Counties Air Basin (MCAB).

Air quality management programs in California are the responsibility of local air pollution control districts (APCDs), the California Air Resources Board (CARB), and the U.S. Environmental Protection Agency (EPA). The local APCDs for the Old Camp Nine Bridge are the Calaveras County APCD and the Tuolumne County APCD.

Air quality problems in the MCAB include periodic high levels of ozone and suspended particulate matter. Other air pollutants generally do not occur in concentrations high enough to constitute a problem (NPS 2007).

While air quality in a given air basin is usually determined by emission sources within the basin, it also can be affected by pollutants transported from upwind air basins by prevailing winds. For instance, the California Environmental Protection Agency concluded that all of the ozone exceedances in 1995 in the southern portion of the MCAB (i.e., Tuolumne and Mariposa Counties) were caused by transport of ozone and ozone precursors from the San Joaquin Valley Air Basin (California Environmental Protection Agency 1996b in NPS 2007). Air quality in the MCAB is also significantly affected by pollutant transport from the metropolitan Sacramento area and the San Francisco Bay Area (NPS 2007).

The 2006 State Area Designations Maps are updated annually for state area designations, as required by the Health and Safety Code (H&SC) section 39608. The CARB has established state area designations for ten criteria pollutants: ozone, suspended particulate matter (PM_{10}), fine suspended particulate matter

($PM_{2.5}$), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility-reducing particles. Both Calaveras and Tuolumne Counties are non-attainment for ozone, and Calaveras County is non-attainment for PM_{10} (CARB 2007a).

The EPA has established national area designations for five criteria pollutants: ozone (1-hour and 8-hour standards), PM_{10}, carbon monoxide, nitrogen dioxide, and sulfur dioxide. Both counties are non-attainment for 8-hour ozone (CARB 2007a).

Air monitoring is conducted for ozone at the San Andreas-Gold Strike Road Site in San Andreas, Calaveras County, and at the Sonora-Barretta Street Site in Sonora, Tuolumne County (CARB 2007b).

According to the CARB 2006 Estimated Annual Average Emissions Almanac Projection Data (CARB 2007c, 2007d) for Tuolumne and Calaveras Counties, the main sources of air pollutants in these counties are stationary sources, area-wide sources (including construction and demolition, paved and unpaved road dust, and fugitive dust), and mobile sources (including on-road motor vehicles).

3.5.2 Environmental Consequences

No Action

Under the No Action alternative, the bridge would not be demolished, and impacts to air quality would not occur unless the bridge were to collapse. If the bridge collapsed in the future, impacts to air quality would likely be less than significant if the collapse occurred during a high water period and the impact were absorbed by water. If the bridge collapsed during a period when the river was dry or experiencing low flow, however, it is anticipated that some particulates would be generated in the form of dust when the structure impacted the river bed and surrounding bedrock. Dust would potentially be generated from the breaking of concrete and from riverbed material being entrained to the ambient air. Because the steel structures were painted with a lead-based paint or primer, there is the potential for release of lead-containing particulates. Release of particulates would be uncontrolled. Therefore, implementation of the No Action alternative could cause potentially significant impacts to air quality on a local level only.

Proposed Action

Under the Proposed Action, impacts to air quality would be intermittent and short-term. Old Camp Nine Bridge would be removed using controlled demolition techniques over an approximate 3-month period. Controlled demolition techniques include systematically dismembering various components of the bridge, saw-cutting the wooden deck, cutting girders and cross beams, torch cutting steel structures, and hydraulic splitting or expansive compound technique to demolish concrete piers.

Controlled demolition environmental commitment include minimizing flying debris by torch cutting and saw cutting, collecting any lead-contaminated debris by use of a HEPA vacuum, and minimizing concrete dust by hydraulic splitting or expansive compound technique. It is anticipated that air emissions from the controlled demolition would be less than significant incorporated.

Access to the site via Former FR 3N03 on the east side and the Camp Nine Road and other existing access roads on the west side of the bridge are paved. There is no plan to construct a temporary access road. Staging areas will be established on both sides of the bridge; however, only minimal grading activities are planned for staging areas. Emissions of fugitive dust and re-entrained dust would be less than significant.

It is anticipated that tailpipe emissions from diesel-fueled demolition equipment, heavy-duty trucks, and other diesel and gas-fueled equipment (such as generators) may result in temporary increases of concentrations of PM_{10} and precursors to ozone in ambient air. Diesel exhaust from heavy equipment may accumulate in the area during inversions, although these inversions are more likely during the winter than during the proposed demolition period. High exhaust velocities and temperatures will augment dispersal of pollutants in tailpipe emissions during the short, 3-month demolition period. Additionally, 85 truckloads of debris, moved over 45 hours, are anticipated for transportation of debris off site (see **Table 1** for more detail). Ground level concentrations of pollutants near the project area would be less than significant.

Overall, impacts to air quality are anticipated to be low, intermittent, and short-term. Emissions of PM_{10} would be mitigated using controlled demolition techniques. Tailpipe emissions, including precursors to ozone, would be minimized over an anticipated 3-month period. Therefore, environmental effects on air quality caused by the implementation of the Proposed Action would be less than significant.

3.6 Groundwater

3.6.1 Affected Environment

The ROI for groundwater resources includes groundwater underlying the project area, which includes the Stanislaus River channel at the bridge, as well as the adjacent river banks and staging areas on the left and right banks of the river.

Groundwater resources in the project area are part of the greater San Joaquin Valley and the Great Valley Geomorphic Province of California. The San Joaquin Valley region supplies about 2,200 acre-feet or 30 percent of water demand with groundwater resources (CDWR 2003). The Eastern San Joaquin Subbasin is composed of unconsolidated to semiconsolidated sedimentary deposits that are bounded by the Stanislaus River to the south, consolidated bedrock to the east, the Mokelumne River to the north and the San Joaquin River

to the west. Water-bearing formations in this region include the Alluvium and Modesto/Riverbank formations, Flood Basin Deposits, Laguna Formation and the Mehrten Formation. Of these formations, the Mehrten Formation is considered to be the oldest fresh-water bearing formation on the east side of the hydrogeologic region. The underlying Valley Springs Formation yields minor quantities of water (CDWR 2003).

Little data exist to describe site-specific groundwater resources in the Stanislaus River area near the Old Camp Nine Bridge. No known wells are located within the project area or general vicinity. The depth to the water table in the project is more than 80 inches.

3.6.2 Environmental Consequences

No Action

Under the No Action alternative, groundwater resources would be the same as the existing conditions described in the "Affected Environment" section. Therefore, implementation of the No Action alternative would cause no environmental effects.

Proposed Action

A spill of oil or gas used in equipment for bridge removal may infiltrate into the ground through a fault in the bedrock or through the soil column. There is little chance that such a spill would actually contaminate groundwater resources due to the depth to the water table. Because no known ground water supply wells are located in the general vicinity, no groundwater water supplies will be affected. Additionally, because depth to groundwater is greater than 80 inches, it is unlikely that groundwater resources will be impacted from bridge removal activities occurring at the land surface. Therefore, environmental effects to groundwater resources caused by implementation of the Proposed Action would be less than significant.

3.7 Surface Water

3.7.1 Affected Environment

The ROI of surface water resources is classified as the Stanislaus River from the Stanislaus Powerhouse (located 0.5 mile upstream of the Old Camp Nine Bridge) downstream to its confluence with the main body of the New Melones Reservoir (located 11.5 miles downstream).

The Old Camp Nine Bridge is located on the main stem of the Stanislaus River about 2 miles downstream from the confluence of the North Fork of the Stanislaus River with the Middle Fork of the Stanislaus River. The Stanislaus River at the Old Camp Nine Bridge has a drainage area of 630 square miles, and here the river forms the border between Calaveras and Tuolumne Counties (FERC 2005). The project area of the Stanislaus River is part of the Upper Stanislaus River

Watershed, Hydrologic Unit Code (HUC) 180040010. The Stanislaus River watershed is bounded by the Mokelumne River watershed on the north and the Tuolumne River watershed on the south. The headwaters of the Stanislaus River are located east of the project area within the Emigrant and Carson-Iceberg Wildernesses of the Stanislaus National Forest, which comprise part of the Sierra Nevada mountain range of north-central California. Peak elevations in the headwaters area of the Stanislaus River average about 10,000 feet, and springs that supply flow to the river are prominent. The elevation of the Stanislaus River at the Old Camp Nine Bridge is about 1,070 feet (USGS 1948). The river flows southwesterly to its confluence with the San Joaquin River just west of the City of Modesto located in the Central Valley region of California. The Stanislaus River is a steep gradient channel averaging about 70 feet per mile, that is deeply incised (OARS 2007). The channel is confined by bedrock outcroppings, and the substrate is composed of boulders and cobbles (Reclamation 2007, FERC 2005). The steep river gradient and bedrock outcropping impede the development of a meandering river pattern and floodplain. It is worth noting, however, that the floodplain in this location is poorly developed due to the prominent bedrock outcropping, the steep channel, and bank gradients.

Climate typical of the project area is described by warm dry summers and wet winters with significant rainfall in the spring, especially at the river's headwaters. Precipitation varies greatly in the area but is directly correlated to elevation. Average annual mean precipitation is approximately 31.72 inches, most of which occurs in the form of rainfall from the late fall to early spring. The hydrograph of the Stanislaus River peaks in late spring/early summer coincident with peak snowmelt. Snowmelt within the Stanislaus River watershed accounts for about 90 percent of the yearly runoff, of which about 70 percent occurs between April 1 and July 31 (FERC 2005). Baseflows are generally achieved in the late summer/early fall. Smaller hydrograph peaks are typically observed in the late fall corresponding with fall storms moving inland from the Pacific Ocean. Mean annual flow of the Stanislaus River at the Old Camp Nine Bridge is about 1,000 cubic feet per second (cfs) or 730,000 acre-feet. Mean monthly flow peaks for the Stanislaus River in May and June are at more than 2,000 cfs and low monthly flows average are 250 cfs in November. Monthly flow statistics are shown in **Table 3** (FERC 2005). During high flow periods that coincide with high reservoir conditions, the Old Camp Nine Bridge becomes inundated by river flows.

Bridges across rivers, like any structure, have the potential to influence channel morphology and flow velocities. Bridge supports may narrow river channels, which cause flow velocities to accelerate through the bridge and therefore may lead to increased scouring directly downstream of the bridge (NPS 2001).

Table 3: Monthly Flow (cfs) Statistics for the Stanislaus River at Old Camp Nine Bridge[1]

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	372	249	396	1051	892	1271	1311	2281	2247	1120	487	444
Median	298	206	213	287	747	1254	1238	2082	1789	541	405	425
Maximum	1214	1163	6248	34553	4656	8432	8907	20666	8115	5962	1747	1310
Minimum	89	59	57	57	62	70	157	91	89	89	89	90
10% Exceedance	719	444	880	2056	2115	2355	2226	4637	5800	3301	1057	823
90% Exceedance	96	66	69	68	66	179	424	226	174	163	110	109

[1] Statistics shown in this table were calculated using a combination of USGS gage data for stations 11295250 Collierville powerhouse near Hathaway Pines, CA, 11295300 North Fork of Stanislaus River below Beaver Creek near Hathaway Pines, CA, adjusted for drainage area differences, period of record February 1, 1990 to September 30, 2002; added to gage stations 11293200 Middle Fork of the Stanislaus River below Sandbar Diversion dam near Avery, CA (prorated by a factor of 1.0873), added to USGS gage station 11295500 Stanislaus tunnel at outlet, CA (1974-1993), and USGS gage station 11295505 Stanislaus powerhouse.

Source: FERC 2005

Water quality of the Stanislaus River at the Old Camp Nine Bridge is generally of superior quality and within applicable water quality objectives (FERC 2005). Water quality, namely temperature, is influenced by releases of the New Melones Reservoir, which is located 11.5 miles downstream. The Stanislaus River and its tributaries have been largely manipulated to provide hydroelectric power for nearby population centers in California, and the New Melones Reservoir serves as the most prominent example of this manipulation. The New Melones Reservoir is used for water supply, flood control, and hydroelectric power generation. Beneficial uses of the Stanislaus River include municipal and domestic water supply, irrigation, stock watering, contact and non-contact recreation, power production, warm and cold freshwater habitat, and wildlife (CVRWQCB 1998, FERC 2005). No surface waters in the Upper Stanislaus River watershed are classified as impaired under Section 303(d) of the Clean Water Act (EPA 2007).

Water quality parameters that may be affected by the Old Camp Nine Bridge demolition include turbidity and total suspended sediment (TSS). The State of California has set objectives for turbidity and TSS which are described in **Table 4** (CVRWQCB 1998, FERC 2005). Metals that have been proven to influence aquatic organisms including copper, iron, manganese, silver and zinc, occur in less than detectable limits. Sources of metals in the Stanislaus River have been attributed to natural sources (i.e. not human-related sources). Methyl tertiary-butyl ether (MTBE), a gasoline fuel additive for oxygenation that has known negative environmental health effects, has occurred in excess of Maximum Contaminant Levels (MCLs) for California. High levels of MTBE found in water samples from the Stanislaus River have been attributed to gasoline-powered motor boats using the river and runoff from parking lots surrounding the river.

Table 4: Applicable State Water Quality Objectives for the Stanislaus River at the Old Camp Nine Bridge

Water Quality Parameter	State Objective
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits: • 0-5 nephelometric turbidity units (NTUs) not to exceed 1 NTU • 0-50 NTU increases not to exceed 20% • 50-100 NTU not to exceed 10 NTU • 100 NTU not to exceed 10%
Sediment	Suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause a nuisance or adversely affect beneficial uses.

Source: CVRWQCB 1998, FERC 2005

Due to the large amount of exposed bedrock in and surrounding the Stanislaus River channel, little sediment delivery occurs. In general, TSS levels are very low during low flow conditions. Further, reservoirs within the Upper Stanislaus River watershed, including New Melones Reservoir, act as effective sediment traps for materials larger than fine silt and clay during runoff. Samples for TSS and total settable solids collected and analyzed in 2000 and 2001 yielded results lower than laboratory method detection limits. Turbidity measurements from water samples during the same time frame ranged from 0.2 to 74.5 NTUs with the mean of most readings below 9 NTUs. The maximum turbidity level of 74.5 NTUs was recorded the North Fork of the Stanislaus River just upstream from the confluence with the Middle Fork of the Stanislaus River (FERC 2005). This high turbidity reading relative to other samples near the project site may be attributable to the mixing of sediment and water at the confluence of the two river forks.

3.7.2 Environmental Consequences

No Action

Under the No Action alternative, surface water resources would be the same as they are today in the near term. The current conditions of surface water resources are described above in the "Affected Environment" section of the "Surface Water Resources" section. However, under the No Action alternative, the Old Camp Nine Bridge would continue to adversely affect the Stanislaus River hydrology by constricting the Stanislaus River flow, which results in an increase of flow velocities under the bridge. The constriction of flow at the bridge subsequently results in riverbank scouring and erosions as well as the erosion of the bridge support structures. Further, scouring downstream of the bridge may lead to down-cutting of the riverbed.

Due to the impounding of Stanislaus River flows at the New Melones Reservoir, the Old Camp Nine Bridge becomes inundated at times during high flows and high reservoir conditions. During such conditions, the bridge structure and

abutments are especially subjected to erosion from the erosive forces of the water and from large woody debris that catches and accumulates on the upstream side of the bridge structure. If the Old Camp Nine Bridge is left in place as is, under the No Action alternative, the bridge will continue to restrict river flow and negatively affect the river's natural hydrologic processes including geomorphic processes. It is likely that, if left in place, the bridge would eventually collapse due to continued scouring and erosion from high flows and the impact from large woody debris during inundation periods. The hydrologic impacts from the bridge collapse would most likely be local and short-term in nature. After the eventual bridge collapse, a more natural hydrologic regime may be somewhat restored; however, the presence of large debris from the bridge would continue to impact hydrologic processes. The overall timing of the bridge collapse and restoration of the natural hydrologic regime cannot be predicted under the No Action alternative.

Water quality would also be impacted from the bridge collapse through the introduction of metals and lead (from lead-based paint on bridge) into the river water from felled submerged bridge debris. An increase in the concentrations of metals, including lead, as well as increased TSS and turbidity, could potentially lead to violation(s) of water quality standards based on the beneficial uses assigned to the upper Stanislaus River. Fallen bridge debris that lands in the river channel may also act as a low-head dam during low flow conditions, which may impair aquatic habitat and cause continued scour and erosion around the bridge debris.

During periods of inundation, lead based paint also poses a potential water quality issue. Lead-based paint is present on the surface of the steel components at concentrations ranging from 0.2 to 3.2 milligrams per square centimeter (mg/cm^2) (Accord 2007). During high water periods, these steel components can become inundated, which would increase the potential for lead particles to be mobilized and released to surface waters. Release of lead particulates would be uncontrolled in these situations. If the bridge eventually collapsed, steel components of the bridge could become permanently inundated, which would increase the potential for lead to be mobilized. Therefore, implementation of the No Action alternative could cause potentially significant impacts to surface water quality on a local level.

The No Action alternative would result in the continuation of existing hydrologic conditions. Upon the inevitable bridge collapse, however, negative acute impacts to the hydrology and water quality of the Upper Stanislaus River are likely to occur. The greatest short-term impacts from the bridge collapse would likely be the introduction of metals in to the river as well as an increase in TSS and turbidity. If the bridge components are removed after its collapse, adverse short-term water quality impacts would include sedimentation from debris removal and streambank erosion from the use of heavy equipment for debris removal. Depending on the length of time the fallen debris is left in the channel, metals

may become soluble and introduced to the water column, which could cause a violation of water quality standards. Over the longer term, however, the river would assimilate and eventually revert to its natural hydrologic characteristics. Implementation of the No Action alternative would have potentially significant impact on surface water resources in the short term, but these would decrease to less than significant environmental effects in the long term.

Proposed Action

The impact assessment of the Proposed Action (bridge removal) included examining potential changes to channel morphology as well as potential restrictions to streamflow, potential repositioning of the channel bed, channel bed scour, bank erosion and instability, potential changes to flow rates, and sediment transport mechanisms. The analysis of environmental consequences to surface water resources involved an assessment of potential effects on both water quantity and quality.

The ROI of surface water resources of the proposed action encompasses an area of the Stanislaus River about 12 river miles from the Stanislaus Powerhouse downstream to the New Melones Reservoir. Minor impacts to the water quantity (flow regime) are anticipated, and local, acute impacts to the water quality may result from the removal of the Old Camp Nine Bridge. The removal of the Old Camp Nine Bridge and its support structures will allow the river's hydrologic processes to return to a natural, unrestricted state. Upon the removal of the bridge structures that restrict flow, flow velocities will likely slow with the inherent widening of the channel. Also, with the removal of the bridge constriction, natural geomorphic processes will be restored, and the river will likely make more use of its natural floodplain.

Water quality impacts from the project may include short-term, acute sedimentation to the Stanislaus River from earth movement as well as the introduction of metals, wood, and concrete to the river channel during the bridge removal activities. Lead is of particular concern because parts of the bridge are coated in lead-based paint. However, because the bridge demolition activities will occur over a relatively short period (about 3 months), and because water quality protection environmental commitments will be implemented throughout the project activities, it is likely that the water quality will not experience long-term adverse affects. Further, given the minimal contribution of metals into the river channel, the high magnitude of flows typical of the Stanislaus River during certain periods of the year (typically outside of the proposed construction period), the relative short duration of the project, and the careful implementation of environmental commitments, it is unlikely that water quality will be adversely affected in the long term.

Non-point source pollutants may also be potentially introduced into the river from runoff from vehicle and equipment staging areas located on the river banks during demolition activities. Such non-point source pollutants could include spills and/or leaks of gasoline and oil used in vehicles and equipment used in the demolition.

Potential geomorphic affects of the removal of the bridge include river channel widening. Over the long term, scouring and sedimentation surrounding the bridge structures will be reduced once the channel stabilizes following the bridge removal. The long-term benefits to the river include the restoration of a natural hydrologic cross-section.

Applicant proposed measures that will be implemented to protect water quality during the bridge removal include the use of debris containment netting and blankets/sheeting installed under the bridge during demolition to catch and contain debris that would otherwise be introduced into the river channel. A floating debris containment boom will also be installed downstream from the bridge prior to demolition activities to capture bridge debris that is not trapped in the containment netting and blankets. Lead-contaminated debris, such as paint chips, will be collected with a HEPA vacuum device and handled as hazardous waste for disposal. Implementation of the Proposed Action could cause environmental effects that are less than significant for the short term, with positive environmental effects on surface water hydrology in the long term.

3.8 Biological Resources

This section has been structured to satisfy NEPA requirements and to serve as the Biological Assessment to satisfy the consultation requirements under Section 7 of the Endangered Species Act (ESA). Section 7 requires federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of proposed, threatened, or endangered species, or cause the destruction or adverse modification of critical habitat.

3.8.1 Vegetation

Affected Environment

A site visit to assess the vegetation communities at the Old Camp Nine Bridge was conducted on December 21, 2007. Using the Manual of California Vegetation (MCV; CNPS 2007) as a reference, two major vegetation communities were found at the project site. The ordinary high water mark (OHWM), as defined by the USACE (2005), was used as the dividing line between the two communities. The vegetation community above the OHWM can be described as Foothill Pine series, and the community below the OHWM is an atypical riparian community not readily described in the MCV.

General Vegetation Communities
The Foothill Pine series is composed of a variety of upland species of trees, shrubs, and grasses. Species observed at the site include yellow star thistle (*Centaurea solstitialis*), Himalayan blackberry (*Rubus discolor*), common mullein (*Verbascum thapsis*), English plantain (*Plantago lanceolata*), squirrel tail bottlebrush (*Elymus elymoides*), horseweed (*Conyza canadensis*), foothill pine

(*Pinus sabiniana*), California buckeye (*Aesculus californica*), canyon live oak (*Quercus chrysolepis*), evergreen buckthorn (*Rhamnus ilicifolia*), and assorted grasses (University of California, Berkeley 2006). Several of these plants, including yellow star thistle, common mullein, English plantain, and horseweed, are nonnative plants.

The riparian community immediately adjacent to the Stanislaus River showed evidence of frequent water level fluctuations. This evidence included large woody material at the OHWM and floatable debris (trash). The vegetation consisted of a mixture of native and nonnative riparian and wetland plant species. Plant species observed included: sand bar willow (*Salix exigua*), sedges (*Carex spp*), cudweed (*Gnaphalium spp*), vervain (*Verbena lasiostachys* var. *scabrida*), horseweed, common mullein, smart weed (*Polyginum spp.*), curley dock (*Rumex crispus*), hairy vetch (*Vicia villosa*), tufted hairgrass (*Deschampsia cespitosa*), pennyroyal (*Mentha pulegium*), (*Epilobium* spp.) crane's bill (*Erodium cicutarium*), rabbitfoot grass (*Polypogon monospliensis*), rushes (*Juncus* spp.), nut sedge (*Cyperus* spp.), cocklebur (*Xanthium strumarium*), devil's beggartick (*Bidens frondosa*), minors lettuce (*Claytonia* spp. or *Montia* spp.), and barnyardgrass (*Echinochloa crus-galli*) (University of California, Berkeley 2006).

Wetlands, as defined by the USACE, do not exist along the Stanislaus River at the Old Camp Nine Bridge. The project site was assessed for the presence of jurisdictional wetlands, and none were identified. Some wetland plant species, as listed in the preceding paragraph, were observed at the crossing, but other factors, such as hydrology and soils, did not meet the USACE wetland criteria.

Federally listed Plant Species

The USFWS Sacramento office maintains a list of threatened and endangered (T&E) and candidate species by USGS quadrangle that may occur on lands under its jurisdiction (USFWS 2007b). The project area lies in Calaveras and Tuolumne Counties and is included in the New Melones Lake Resource Area which was analyzed in detail with results published in a resource inventory report (RIR) (Reclamation 2007).

Within these counties, the six Federally-listed plant species that may occur include Ione manzanita (*Arctostaphylos myrtifolia*), Chinese Camp brodiaea (*Brodiaea pallida*), succulent owl's clover (*Castilleja campestris* ssp. *succulenta*), Hartweg's golden sunburst (*Pseudobahia bahifolia*), Layne's ragwort (*Packera layneae*), and California vervain (*Verbena californica*). Suitable habitat for these six species does not exist in the New Melones Lake Area (Reclamation 2007) or the project area.

State Listed Special Status Species

The California Department of Fish and Game (CDFG) maintain the California Natural Diversity Database (CNDDB), which tracks Special Status Plant Species for the state. The CNDDB was queried in January 2008 for possible sensitive

plant species occurring in Calaveras and Tuolumne Counties. The following plants were listed: three-bracted onion (*Allium tribracteatum*), Small's southern clarkia (*Clarkia australis*), Tuolumne button-celery (*Eryngium pinnatisectum*), Tuolumne fawn lily (*Erythronium tuolumnense*), Parry's horkelia (*Horkelia parryi*), Tuolumne iris (*Iris hartwegii* ssp. *Columbiana*), yellow-lip pansy monkeyflower (*Mimulus pulchellus*), and Whipple's monkeyflower (*Mimulus whipplei*). These state sensitive plant species are found in a variety of habitats and elevations. Suitable habitat for the eight species listed above does not exist in the project area.

Environmental Consequences

No Action

There is no suitable habitat for any of the listed T&E species that may occur in the project area, so leaving the bridge in place would have no environmental effect on these species. Leaving the bridge in place would have a minor adverse impact to the existing vegetation types currently found at the project site. The continued presence of the Old Camp Nine Bridge would encourage continued foot and vehicle traffic on the existing paths and roads. This reoccurring disturbance would encourage additional establishment and expansion of nonnative plants and might also limit the potential for native plant species to become reestablished in these disturbed areas. Because the existing path is short in length, implementation of the No Action alternative would have a less than significant impact on vegetation resources.

Proposed Action

General Vegetation Communities

Temporary staging areas would be located on both sides of the bridge, in previously disturbed areas. Demolition activities will have a minimal impact on upland vegetation in these areas. If needed, overgrown shrubs adjacent to the access road on the east side of the bridge may be trimmed to accommodate equipment during the demolition period. Most of the overgrown shrubs that could require pruning are not native, but are introduced shrubs (including blackberries [*Rubus* sp.] and gorse [*Ulex* sp.]). Shrub trimming would have a short term impact on individual plants. These plants would be expected to grow back, and trimming may actually stimulate growth. Minor grading may be necessary to accommodate heavy equipment in the previously disturbed west staging area. The grading activities would disturb the near surface soil and could result in an increase of non-native species invading the area once the project is completed. To mitigate this possibility, the area will be reseeded with certified weed-free native seed mix upon completion of the project.

Removing the bridge would have long-term beneficial impacts in that native species would have a higher potential to recolonize the previously disturbed areas. Removal of the bridge would discourage pedestrian traffic to this area, which is a recurring disturbance. Removal of this disturbance would allow vegetation to

reestablish through natural processes. Reseeding would further promote the reestablishment of native vegetation. In the short term, grasses and other early successional species would typically be the first colonizers, followed by shrubs, and eventually tree species. Vegetation cover provides habitat for numerous bird and mammal species which, in turn, could be beneficial to these wildlife as well. Due to the lack of wetlands within the project area, project activities will have no effect on wetlands. Overall impacts to vegetation and wetlands would be less than significant in the short term and positive in the long term.

Federally Listed Species

Removing the bridge would not directly or indirectly impact any of the listed T&E species discussed above because no suitable habitat for any of the species exists at or near the project area.

Implementation of the Proposed Action will have "no effect" on federally listed species.

State Listed Special Status Species

Removing the bridge would not directly or indirectly impact any of the CNDDB sensitive plant species discussed above because no suitable habitat for any of the species exists at or near the project area. Therefore, there would be no environmental effects caused by implementation of the Proposed Action for State Listed Special Status Species.

3.8.2 Wildlife

Affected Environment

General Wildlife Communities

The New Melones Lake planning area, which includes the Stanislaus River habitat in the project area, contains a diverse range of wildlife habitats typical of the lower Sierra Nevada foothills. These include open water, riparian, and oak woodland communities in the lower lake area, and montane hardwood and montane hardwood-conifer woodlands in the upstream canyon area. Consequently, a diverse range of bird, mammal, reptile, amphibian, and invertebrate species are also present. Numbers and species of birds vary by season, habitat, weather, and migration patterns (Reclamation 2007).

Federally Listed Species

The U.S. Fish and Wildlife Service (USFWS) Sacramento Office maintains a list of threatened and endangered (T&E) and candidate species by USGS quadrangle that may occur on lands under its jurisdiction (USFWS 2007b). The project area lies within four USGS quadrangles: Murphy's, Stanislaus, Columbia, and

Columbia SE. **Table 5** lists the species that may occur or have suitable habitat in the four USGS quadrangles and their federal status.

Table 5: List of USFWS Threatened, Endangered, and Candidate Species Possibly Occurring in the Project Area.

Common Name	Scientific Name	Federal Status	USGS Quad
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	Murphy's, Stanislaus, Columbia, Columbia SE
California red-legged frog	*Rana aurora draytonii*	T	Murphy's, Stanislaus, Columbia, Columbia SE
Fisher	*Martes pennanti*	C	Stanislaus, Columbia SE
California tiger salamander, central population	*Ambystoma californiense*	T	Columbia

C – Candidate for federal listing
T - Threatened

In addition to the USFWS list, the California Department of Fish and Game (CDFG) maintains the CNDDB, which tracks federal and state T&E species for the state by county. The project area lies on the border of Calaveras and Tuolumne Counties. **Table 6** lists the species that are known to occur within these two counties.

Table 6: List of CNDDB Threatened and Endangered Species Possibly Occurring in the Project Area.

Common Name	Scientific Name	Federal Status	County
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	Calaveras Tuolumne
California red-legged frog	*Rana aurora draytonii*	T	Calaveras Tuolumne

T - Threatened

Biologists visited the site on November 8 and 9, and again on December 21, 2007, to assess site conditions for wildlife and general environmental issues. Although the bald eagle (*Haliaeetus leucocephalus*) was removed from the endangered species list in June 2007, it is still protected by the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act (USFWS 2007a). During the December 21, 2007 site visit, one adult bald eagle was observed in flight near the Camp Nine Bridge. Suitable nesting and foraging habitat exists in the area and bald eagles likely use habitats near the bridge. The bald eagle nest building period typically occurs in December/January.

The valley elderberry longhorn beetle occurs only in the Central Valley of California in association with blue elderberry (*Sambucus mexicana*) (CDFG 2007a). There are no blue elderberry shrubs in the project area, so suitable habitat for the beetle does not exist.

The California red-legged frog occurs in lowlands and foothills in or near permanent sources of deep water with dense shrubby or emergent riparian vegetation (CDFG 2007a). The Stanislaus River at the bridge site does not provide suitable habitat such as permanent deep water and dense shrub cover. The river bank substrate at the bridge consists of exposed bedrock and large river boulders. There is no suitable habitat for the frog at the bridge crossing.

The fisher occurs in intermediate to large-tree stages of coniferous forests and deciduous-riparian habitat with a high percent of canopy closure. It is an uncommon permanent resident of the Sierra Nevada, Cascades, and Klamath Mountains, and is also found in a few areas in the North Coast Ranges (CDFG 2007a). Although there are conifers in the project area, canopy cover is low, and tree density is sparse. The project area and surrounding vicinity are not considered suitable habitat for the fisher.

The California tiger salamander is most commonly found in annual grassland habitat, but also occurs in the grassy understory of valley-foothill hardwood habitats, and uncommonly along stream courses in valley-foothill riparian habitats. The species occurs from near Petaluma, Sonoma County; east through the Central Valley to Yolo and Sacramento Counties; south to Tulare County; and from the vicinity of San Francisco Bay south to Santa Barbara County (CDFG 2007a and Reclamation 2007). The banks of the Stanislaus River at the bridge crossing are relatively steep and rocky, and areas immediately adjacent on either side of the river are a mix of upland shrubs and trees. Suitable habitat for the salamander does not exist in or near the project area.

State Listed Special Status Species

The CNDDB also maintains a list of Special Status Species for the state. The project area falls within the New Melones Lake Resource Area which was analyzed in detail with results published in a resource inventory report (RIR) (Reclamation 2007). There are 47 Special Status Species listed in the RIR that could possibly occur or have habitat in the resource area. Of the 47 species, 22 have been confirmed in the area (Table R-19, Page 4-18 of the RIR). Of the 22 confirmed species, the bald eagle (*Haliaeetus leucocephalus*) is the only species that would have suitable habitat at or near the Old Camp Nine Bridge. A substantial amount of suitable habitat exists adjacent to the bridge.

Environmental Consequences

No Action

There is no suitable habitat for any of the listed T&E species that may occur in the project area, so leaving the bridge in place would have no environmental effect on

these species. Other non-listed species that might be present in the area and the state listed bald eagle would continue to use the habitat around the bridge. If the bridge is not removed as proposed, there could be an unplanned catastrophic failure, which could result in the bridge washing downstream and permanently damaging or removing suitable habitats by increasing erosion in areas where the bank has been damaged. This could present a minor long-term impact. Therefore, implementation of the No Action alternative would cause less than significant impacts to wildlife resources.

Proposed Action

General Wildlife Communities

Bird and mammal species currently using the habitat in the proposed project area may be temporarily displaced, primarily due to noise, during demolition activities, resulting in a temporary short-term impact. Suitable similar habitat exists adjacent to the bridge and proposed staging areas which could be used by these displaced species until project activities were complete. There would be a less than significant impact to existing wildlife near the bridge.

In addition, the Proposed Action could have long-term beneficial impacts to numerous non-listed birds and small mammals that use the Stanislaus River corridor for denning, nesting, and foraging activities. Therefore, environmental effects caused by implementation of the Proposed Action would be less than significant in the short term and positive in the long term for general wildlife communities.

Federally Listed Species

Removing the bridge would not directly or indirectly impact any of the listed T&E species discussed above because no suitable habitat for any of the species exists at or near the project area.

Implementation of the Proposed Action will have “no effect” on the Valley Elderberry longhorn beetle, California red-legged frog, fisher, or California tiger salamander.

State Listed Special Status Species

In the short term, bald eagles would not be impacted by demolition activities as these activities will be completed prior to the normal migratory return of bald eagles to the area and subsequent nest building. In the long term, bald eagles that do use the area may benefit from the bridge removal in that it could provide additional foraging habitat free of human activity and structures, resulting in a less than significant environmental effect on the bald eagle. Therefore, environmental effects caused by implementation of the Proposed Action would be less than significant in the short term and positive in the long term for State Listed Special Status Species.

3.8.3 Fisheries

Affected Environment

General Fish Communities

The fishery in the New Melones Lake is managed primarily for sport fishing. Most of the confirmed species have been introduced to the lake including all but one of the game fish. Both warm and cold water sport fish species are present, and the lake is well regarded for excellent fishing opportunities. Salmon and steelhead that historically ran up the Stanislaus River are now blocked by dams.

There are numerous native and introduced freshwater fish that are not special status species that may inhabit the Stanislaus River near the Old Camp Nine Bridge. Kokanee salmon, rainbow trout, and brown trout inhabit the Stanislaus River upstream of the lake. Of these species, the Kokanee salmon (*Oncorhynchus nerka*) is known to use the stretch of river where the Old Camp Nine Bridge currently stands. Kokanee salmon were introduced to the New Melones Lake in 1997, and move upstream into the Stanislaus River for spawning activities. Kokanee currently move under the bridge unimpeded, and could continue to do so even during project activities. Depending on the genetic stock and the lake and stream temperatures, Kokanee spawn between September and February.

Federally Listed Species

The project area lies within four USGS quadrangles: Murphy's, Stanislaus, Columbia, and Columbia SE. **Table 7** lists the fish species with federal status that may occur or have habitat in the four USGS quadrangles.

Table 7: List of USFWS Threatened, Endangered, and Candidate Fish Species Possibly Occurring in the Project Area.

Common Name	Scientific Name	Status	USGS Quad
Delta smelt	*Hypomesus transpacificus*	T	Murphy's, Stanislaus, Columbia, Columbia SE
Central Valley steelhead	*Oncorhynchus mykiss*	T	Murphy's, Stanislaus, Columbia, Columbia SE

Delta smelt (Hypomesus transpacificus)

Delta smelt are a euryhaline species (tolerant of a wide salinity range). They have been collected from estuarine waters up to 14 parts per thousand (ppt) salinity. For a large part of their one-year life span, delta smelt live along the freshwater edge of the mixing zone (saltwater-freshwater interface), where the salinity is approximately 2 ppt. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse widely into river channels and tidally influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally influenced backwater sloughs and channel edgewaters (USFWS 2008). Although spawning has not been observed in the wild, the eggs are

thought to attach to substrates such as cattails, bulrushes, tree roots, and submerged branches.

Currently, delta smelt are not found in Calaveras and Tuolumne Counties. Designated critical habitat has been established in Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties (USFWS 2007b). The project area is not within designated critical habitat for this species, and suitable habitat is not present.

Central Valley steelhead (Oncorhynchus mykiss)

Oncorhynchus mykiss exhibit one of the most complex suites of life history traits of any salmonid species (NOAA 2005). *Oncorhynchus mykiss* may exhibit anadromy (meaning they migrate as juveniles from fresh water to the ocean, and then return to spawn in fresh water) or freshwater residency (meaning they reside their entire lives in fresh water). Resident forms are usually referred to as ‘‘rainbow’’ or ‘‘redband’’ trout, while anadromous life forms are termed ‘‘steelhead.’’ Steelhead typically migrate to marine waters after spending 2 years in fresh water. They then reside in marine waters for typically 2 or 3 years prior to returning to their natal stream to spawn as 4- or 5-year-olds. Unlike other Pacific salmon, steelhead are iteroparous, meaning they are capable of spawning more than once before they die. However, it is rare for steelhead to spawn more than twice before dying (NOAA 2005).

The California Central Valley steelhead includes all naturally spawned populations of Steelhead in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries. There is designated critical habitat for the Central Valley Steelhead downstream of Tulloch Lake in the Stanislaus River (NOAA 2005). Tulloch Lake is located approximately 6 miles downstream and southwest of New Melones Lake, while the project area is located upstream and northeast of New Melones Lake outside any designated critical habitat, and suitable habitat is not present.

State Listed Special Status Species

Four Special Status Species are listed in the RIR (Reclamation 2007): the San Joaquin roach (*Lavinia symmetricus* ssp.1), Central Valley steelhead (*Oncorhynchus Mykiss*), Central Valley late fall-run Chinook salmon (*Oncorhynchus tshawytscha*), and Red Hills roach (*Lavinia symmetricus ssp.3*). The first three are listed as unlikely to occur within the New Melones Lake Area, and the Red Hills roach is listed as possibly occurring. None have been confirmed. There is no potential habitat in or near the project area for these four Special Status Species.

Environmental Consequences

No Action

While the Old Camp Nine Bridge is not currently a fish migration barrier, the cement footings occupy a portion of the streambed that could be used by migrating Kokanee salmon. Leaving the bridge in place could have a less than significant adverse impact on fish migration and a potentially significant adverse impact on fish habitat downstream in the event of a catastrophic event that could wash the bridge downstream. Therefore, environmental effects caused by implementation of the No Action alternative would be less than significant in the short term and potentially significant in the long term.

Proposed Action

General Fish Communities

If project activities take place toward the latter part of the projected June-November timeframe, Kokanee salmon could be spawning along stretches of the river up- and downstream of the bridge. Suitable spawning redds are not present at the Old Camp Nine Bridge but are present upstream near the Collierville Powerhouse. Fish traveling past the bridge to spawn upstream would be able to do so unimpeded because there would be no equipment in the river, and the floating debris containment boom would not be a fish barrier because it only floats on the surface. In addition, if water quality is impacted from wood and metal debris falling through the containment net, it would be temporary and short in duration and would be less than significant for fish species.

Cement footings occupy a portion of the streambed that could provide fish habitat if removed. In conjunction with the removal of the Stanislaus Afterbay Dam, the removal of the Old Camp Nine Bridge will have a potentially beneficial impact on fish migration and spawning activities. Therefore, long-term environmental effects caused by implementation of the Proposed Action would be positive for general fish communities.

Federally Listed Species

Delta Smelt

Implementation of the Proposed Action will have “no effect” on the delta smelt or its designated critical habitat due to the lack of suitable habitat and the fact that the species have not been confirmed in the resource area.

Central Valley Steelhead

Implementation of the Proposed Action will have “no effect” on the Central Valley steelhead or its designated critical habitat due to the lack of suitable habitat and the fact that the species have not been confirmed in the resource area.

State Listed Special Status Species

The four special status fish species listed in the RIR would not be impacted by the Proposed Action due to the lack of suitable habitat and the fact that the species have not been confirmed in the resource area. Therefore, implementation of the Proposed Action would cause no environmental effect to State Listed Special Status Fish Species.

3.9 Wildfire

3.9.1 Affected Environment

Within the project vicinity, fuels range from light grass to timber. Fires in lighter fuels in lower elevations are typically easier to control, but are the flash type with a very rapid spread under bad fire weather conditions. The heavier fuels on steeper slopes of the higher elevations are not as conducive to extreme spread as are the lighter fuels; however, fires in heavier fuels are hard to control because of the intense heat generated, greater manpower requirements, and inherent restrictions on the use of equipment.

3.9.2 Environmental Consequences

No Action

Under the No Action alternative, the potential for wildfires would not be increased by leaving the bridge in place beyond the potential for fires to be stated by naturally occurring ignition sources, such as lightning. Therefore, environmental effects caused by implementation of the No Action alternative would be less than significant in the short term and long term.

Proposed Action

Demolition activities would introduce several potential ignition sources to the project area, including cutting torches and equipment. Igniting a wildfire in the project area, which is a potential effect associated with demolition, would be temporarily increased under the Proposed Action. However, the overall potential to start a wildfire during demolition but would be low. Fire suppression equipment, a no smoking policy, shutdown devices, and other safety measures also would minimize the potential for starting a wildfire. The risk to the public would be minimal because of limited public use and presence in the project area. In the unlikely event that a fire was started as part of construction, it would have significant short term impacts on air quality and long term impacts related to the loss of vegetation, including increased erosion and sedimentation. However, the potential for wildfire (and associated impacts) are considered to be less than significant because of the very low likelihood for a wildfire to be started during demolition.

3.10 Cultural and Historic Resources

3.10.1 Affected Environment

Introduction

This section discusses the potential for the Old Camp Nine Bridge Removal Project to affect cultural resources. The term "cultural resources" is used to describe archaeological sites, illustrating evidence of past human use of the landscape; the built environment, represented by structures such as dams, roadways, and buildings; and resources of religious and cultural significance, including, but not limited to, structures, objects, districts, and sites. A cultural resource that is greater than 50 years old qualifies for consideration as a historic property. Historic properties are defined as those cultural resources listed, or eligible for listing, on the NRHP. The criteria for NRHP eligibility is outlined at 36 Code of Federal Regulations (CFR) Part 60.4. Historic properties include Traditional Cultural Places, which are resources of religious and cultural significance that are eligible for the NRHP by virtue of their traditional significance.

The area of potential effects (APE) and ROI for cultural resources was identified as the Old Camp Nine Bridge, the abutments and access thereto on either side of the Stanislaus River, and the river channel under and adjacent to the bridge. The APE is located in the NE¼NE¼, Sec. 12, T. 3 N., R. 14 E. as depicted on the Murphy's 7.5-minute U.S. Geological Survey (USGS) Quadrangle and shown on Map 4. The Stanislaus River forms the boundary between Calaveras and Tuolumne Counties at this location. This section summarizes the prehistory, ethnography, and history of the project area; the study methods and results; and the effects of the Old Camp Nine Bridge Removal Project upon historic properties.

Prehistoric, Ethnographic, and Historic Context

The prehistoric, ethnographic, and historic context summarized in this section are primarily derived from the previous compilation of information by Jackson et al. (1976), Ludwig and Deis (2001), Baker (2002), and Flint and Baloian (2004).

Prehistory

The Central Valley has a long and complex cultural history with distinct regional patterns that extend back about 11,000 years. The first generally agreed-upon evidence for the presence of prehistoric peoples is represented by the distinctive fluted spear points (Clovis points) found on the margins of extinct lakes in the San Joaquin Valley. The Clovis points are found on the same surfaces with the bones of extinct animals such as mammoths, sloths, and camels. Based on evidence from elsewhere, the ancient hunters who used these spear points existed during a narrow time range of 10,900 BP (before present) to 11,200 BP (Elsasser 1978; Wallace 1978a).

About 8,000 years ago, many California cultures shifted the main focus of their subsistence strategies from hunting to seed gathering as evidenced by the increase in food-grinding implements found in archaeological sites dating to this period. This cultural pattern is best known in southern California, where it has been termed the Milling Stone Horizon (Wallace 1954, 1978a), but recent studies suggest that the horizon may be more widespread than originally described and was likely present throughout the Central Valley.

Cultural patterns as reflected in the archeological record, particularly specialized subsistence practices, became increasingly diverse within the last 3,000 years. The archeological record becomes more complex as specialized adaptations to locally available resources were developed and populations expanded. Many sites dated to this period contain mortars and pestles or are associated with bedrock mortars, implying increasingly intense exploitation of acorns. The range of subsistence resources utilized, along with exchange systems, expanded significantly. Along the coast and in the Central Valley, archeological evidence of social stratification and craft specialization includes well-made artifacts such as pendants and beads, which are often found as mortuary items (Elsasser 1978; Wallace 1978a).

Ethnography

The APE is located within lands ethnographically occupied by the Northern Valley Yokuts. At the time of European contact after AD 1750, the Northern Valley Yokuts occupied an area extending north-south between the Mokelumne and Fresno Rivers and generally bounded by the Mount Diablo Range to the west and the crest of the Sierra Nevada Mountains to the east (Wallace 1978b). This territory borders, and probably overlapped to some extent, with that of the Me-Wuk (also spelled Miwok), who had a similar way of life.

The traditional basic social unit for the Northern Valley Yokuts was the family, although the village may also be considered a social, political, and economic unit. Often located on flats adjoining streams, villages were inhabited mainly in the winter because it was necessary to go into the hills and higher elevation zones to establish temporary camps during food-gathering seasons (spring, summer, and fall). Villages typically consisted of a scattering of small structures, each containing a single family of three to seven people. Larger villages that were maintained seasonally might also contain an earth lodge (Wallace 1978b).

As with most California Indian groups, economic life for the Northern Valley Yokuts revolved around hunting, fishing, and collecting plants and seeds. Deer, acorns, and avian and aquatic resources were primary staples. The Northern Valley Yokuts used a wide variety of wooden, bone, and stone tools to collect and process their food. Large game were hunted with bow and arrow, while traps and snares were used for small animals such as quail, waterfowl, and rabbits. A variety of baskets, mortars and pestles, and other tools were used to collect and process acorns, buckeye, hazelnut, pine nuts, and a wide range of annual seeds

and plants. Annual burning was practiced to improve plant and animal habitat. Salmon constituted an important aquatic resource and were captured with nets while hook and line and two-prong harpoons were also used to catch sturgeon and whitefish (Wallace 1978b).

Today, the lands within Tuolumne and Calaveras Counties are identified as areas of historic use by the Chicken Ranch Rancheria of Me-Wuk Indians and the Tuolumne Band of Me-Wuk Indians.

History

The community of Camp Nine (Stanislaus on the Columbia 15-minute USGS Quadrangle map) was established to house employees involved with construction and operation of the Camp Nine (Stanislaus) Powerhouse, one of the first facilities built for the Spring Gap-Stanislaus Hydroelectric Generation Project. The origin of the Stanislaus hydroelectric system lies in the combined demands for water for hydraulic mining and for electricity to run the San Francisco street railway system just after 1900. The basic layout emerged in 1896, when J. H. Lin and George Batten filed six water claims on the Middle Fork Stanislaus River. The plan was to divert water at Sand Bar flat to a flume system that would deliver water to a powerhouse at "Sublett's Bridge" (near the present Stanislaus Powerhouse site). The river was surveyed in 1902, but the plan never got beyond the level of survey. Batten bought out Linn, then sold the water rights to Beach Thompson, owner of the San Domingo hydraulic mining operation near Altaville in Calaveras County (Baker 2002).

Thompson developed an arrangement with investors in San Francisco to finance a water project that would deliver water to the San Domingo Mine and provide power to run street cars in San Francisco. Thompson formed the Stanislaus Water and Power Company and held 97 percent of the stock. These holdings were transferred to the Stanislaus Electric Power Company (SEPC), who also bought the Tuolumne County Water and Electric Power Company, which included additional water rights. SEPC formed the Union Construction Company to organize the construction of the system. The SEPC would operate the facilities upon completion (Baker 2002; Theodoratus et al. 1976). The Union Construction Company first built a headquarters camp at Vallecito, followed by a large sawmill and camp at the head of Knight's Creek, and then Camp Nine with 30 employees at the proposed site of the Stanislaus Powerhouse (Baker 2002). In 1907, the Sierra and San Francisco Power Company (SSFP Company) took over the SEPC.

Construction of the hydroelectric system lasted from 1906 to 1909 and resulted in Relief Dam, Sand Bar Diversion Dam, the timber trestle Stanislaus Flume, and the first Stanislaus Powerhouse. Camp Nine Road from Parrotts Ferry Road in Vallecito to Camp Nine was completed in 1907 to service the Stanislaus Powerhouse. Company records indicate that the road was built almost exclusively by Slavic immigrants (Theodoratus et al. 1976). The 9-mile-long grade was mostly constructed into the hillside and involved a series of hand-laid rock

retaining walls along the route and rock culverts at the drainages. Camp Nine Road was the primary access to the Stanislaus Powerhouse and community of Camp Nine. The Stanislaus Powerhouse began operation on October 14, 1908 (Theodoratus et al. 1976). After the powerhouse began operations, Camp Nine became a more permanent settlement with the construction of family housing (and other nearby residences) in addition to bunk houses, boarding houses, and the club house. Travel to Camp Nine was initially via horse- and mule-drawn vehicles. Employees did not commute until the 1920s, when the automobile became more common to the area (Theodoratus et al. 1976).

PG&E began leasing from the SSFP Company in 1920 and later acquired the SSFP Company in 1927 (Theodoratus et al. 1976). PG&E continued improvements to the original hydroelectric system facilities. In 1961, PG&E constructed a new powerhouse upstream of the old Stanislaus Powerhouse. The old facilities and residences at Camp Nine were removed following completion (Theodoratus et al. 1976). Camp Nine Road is still the primary access to the new Stanislaus Powerhouse and continues to be used for operation and maintenance.

The Old Camp Nine Bridge is a metal and wood truss bridge built by PG&E as part of Camp Nine Road (CA-CAL-1872), which was constructed during 1906 and 1907 to service the Stanislaus Powerhouse and the Town of Camp Nine (CA-TUO-665H). The bridge was substantially modified for use during construction of the new Stanislaus Powerhouse in 1961. New Melones Dam was built in the early 1980s as a part of Reclamations' Eastside Division of the Central Valley Project. Initial filling of the reservoir began in 1983. A new bridge was constructed by the USACE approximately 0.75 mile downstream from the old bridge and turned it over to PG&E as a replacement for the Old Camp Nine Bridge. The Old Camp Nine Bridge was abandoned with the construction of the New Melones Reservoir, and the new bridge is the current access over the Stanislaus River to Forest Route 3N03 (**Map 3**). From the new bridge, Camp Nine Road was realigned on the west side of the river to access the Collierville Powerhouse at Clarks Flat as part of the North Fork Stanislaus River Project that was constructed between 1985 and 1990.

Camp Nine Road (CA-CAL-1872H) is located within the New Melones National Register Archaeological District identified by the inventory and evaluation conducted for the construction of New Melones Dam and Reservoir. Camp Nine Road was not recorded as part of the District. The road, but not the bridge, was originally recorded by Ludwig and Deis (2001) in 2000. However, no formal determinations of eligibility resulted from the study by Ludwig and Deis (2001).

Current Conditions within the APE

The Old Camp Nine Bridge is currently in poor structural condition as a result of periodic inundation, including extensive damage caused by the floods of 1997 and 1998. PG&E quitclaimed the Old Camp Nine Bridge to Reclamation on September 9, 1985 because it was expected to be inundated and left underwater following construction and filling of New Melones Reservoir. No plans were

made for the upkeep and safety issues associated with leaving the bridge in place. Reservoir operations have resulted in the bridge being exposed above water for long periods of time each year except for the rare high water years. The bridge platform and abutments are damaged, disintegrating, or destroyed; concrete footings have been eroded by water; the bridge platform has been vandalized; and a portion of the bridge platform has been destroyed by fire. The area around Camp Nine is used extensively for recreation, including fishing, swimming, hiking, kayaking, and canoeing, and the old bridge now poses a serious health and safety hazard.

Archaeological and Historical Information Sources

Reclamation reviewed its archaeological site index as well as records in the PG&E Archives. The records search identified four previous Class III surveys by Jackson et al. (1976), Ludwig and Deis (2001), Baker (2002), and Flint and Baloian (2004) that include the entire APE. Old Camp Nine Road (CA-CAL-1872H) is the only known cultural resource in the APE. As-built drawings of the Camp Nine Bridge were acquired from the PG&E Archives.

Native American Consultation

Reclamation sent letters to the Chicken Ranch Rancheria and Tuolumne Rancheria tribes requesting information regarding any properties of religious and cultural significance within or near the APE pursuant to 36 CFR Part 800.4 and 36 CFR Part 800.2(d). The Tuolumne Band of Me-Wuk Indians responded on February 11, 2008 and requested a meeting and field visit to the Old Camp Nine Bridge.

Reclamation met with seven members of the Tuolumne Band of Me-Wuk on March 11, 2008. Max Pan of Accord Engineering, Incorporated (Accord) also attended this meeting to answer technical questions about the bridge removal process. Most of the discussion primarily concerned possible impacts to native plant species in and around the project area. Other than some minor pruning of a few trees on the east side of the bridge, none of the native plant species will be impacted by the bridge removal process. There will also be no debris discharged into the river. The cultural resource inventories conducted by PG&E and Reclamation did not identify any prehistoric sites and there were no concerns expressed regarding the presence of sites of religious or cultural significance in the project area. Max Pan answered numerous questions about how the bridge would be removed.

The Tuolumne Tribal representatives expressed some interest, before and during the meeting, about having a monitor on site during project implementation. Reclamation reiterated that the agency does not hire Tribal monitors to watch construction projects. If a project requires monitoring, Reclamation must adhere to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation and any on-site monitor must meet the Professional Qualification Standards identified at 36 CFR Part 61. Reclamation directed the Tuolumne Tribe to the National Park Service website at:

http://www.nps.gov/history/local-law/arch_stnds_0.htm for more information.

If a member of the Tribe would like to watch the bridge removal project, they will need to coordinate in advance with Peggi Brooks, 209-536-9094 extension 211, or Dan Holsapple, 209-536-9094 extension 220, at the New Melones Field Office. This is important because the access roads are narrow and the project area has limited space. The contractor needs to plan to make sure observers are safely out of the path of bridge deconstruction and vehicle traffic.

Field Inventory

Reclamation Archaeologist Amy Barnes visited the Camp Nine Bridge on July 6, 2006; March 7, 2007; and November 1, 2007. The first visit was a group orientation for PG&E and Reclamation regarding the removal of the Stanislaus Afterbay Dam and removal of the old Camp Nine Bridge. The bridge is located about 150 feet downstream of the Stanislaus Afterbay Dam, which was constructed in 1961. The purpose of the next two visits was to document the bridge structure and inspect both river banks in an effort to identify cultural resources within and adjacent to the APE. Reclamation determined that updating the site record for Camp Nine Road (CA-CAL-1872H) to include the Camp Nine Bridge was the appropriate method of documentation for this resource.

Determinations of Eligibility

Camp Nine Road, including the Old Camp Nine Bridge, is the only known cultural resource located within the APE. Reclamation documented the bridge to update the site record information and applied the Criteria for evaluation found at 36 CFR Part 60.4 and found that Camp Nine Road is eligible for inclusion in the NRHP under Criteria A and C. Camp Nine Road is directly associated with the construction of the Stanislaus Powerhouse, the first facility built for the Spring Gap-Stanislaus Hydroelectric Generation Project. While some original dry-laid rock culverts have been replaced over the years, many of the 1906-1907 dry-laid stone walls are intact and are still located at drainages along the route. The grade appears original to its date of construction and retains a high degree of integrity of design, materials, and workmanship (Barnes 2008; Ludwig and Deis 2001). Therefore, Reclamation determined that Camp Nine Road is eligible for listing on the NRHP under Criteria A and C (this is pending SHPO concurrence).

The Camp Nine Bridge, however, was determined to be not eligible, neither individually or as a contributing element to Camp Nine Road, because it has been entirely modified by planned upgrades and damaged by flooding and vandalism since its construction. The western portion of the Camp Nine Road that would connect to the western approach to the bridge has been destroyed by flooding and construction of the new road to the Collierville Powerhouse. Only the eastern portion of the road connects to the bridge, although the eastern approach was largely destroyed by fire.

3.10.2 Environmental Consequences

Regulatory Context

The National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.), is the primary federal legislation that outlines the federal government's responsibility to consider the affects of its actions on historic properties. The 36 CFR Part 800 regulations that implement Section 106 of the NHPA describe how federal agencies address these effects. Historic properties are defined as those cultural resources listed, or eligible for listing, on the NRHP.

Compliance with Section 106, outlined at 36 CFR Part 800, follows a series of steps that are designed to identify interested parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties.

The regulations require federal agencies to consult with federally recognized tribes to determine if sites of religious or cultural significance are present within the APE for a specific action pursuant to 36 CFR 800.3(f)(2) and 36 CFR Part 800.4(a)(4). Non-federally recognized tribes may also have concerns, and Reclamation involves such tribes as interested members of the public pursuant to 36 CFR Part 800.2(c)(5) and 800.2(d).

The SHPO is also consulted pursuant to 36 CFR Part 800. Federal agencies are required to seek the SHPO's concurrence to ensure that historic properties are considered at all levels of project planning and development.

No Action

Under the No Action Alternative, the Old Camp Nine Bridge would be left in place. Ongoing deterioration of the structure would continue and the bridge would continue to pose safety problems. However, current conditions would also remain the same for the adjacent segment of Camp Nine Road. There would be no direct adverse impact to historic properties. Therefore, implementation of the No Action Alternative would have no environmental effects on cultural resources.

Proposed Action

Camp Nine Road is the only historic property within the APE of the Proposed Action. Reclamation has determined that removing the Old Camp Nine Bridge will have no adverse affect to historic properties pursuant to 36 CFR Part 800.5(d)(1). Use of Camp Nine Road for this project is consistent with operation and maintenance activities associated with the Stanislaus and Collierville Powerhouses. The Old Camp Nine Bridge is located along a portion of the road that has been destroyed. The bridge itself has been completely modified and partially destroyed by flooding and vandalism and has lost its integrity.

Additionally, Reclamation has identified construction practices and protective measures that will avoid any adverse effects to Camp Nine Road, particularly the

portion of Camp Nine Road approaching the east end of the Old Camp Nine Bridge. These include avoiding direct impacts to the hand-laid rock wall structures by only allowing smaller equipment to access the site via the access points supported by the rock walls, using cranes to directly place heavier equipment, and establishing buffer zones and appropriate flagging so that contractors avoid inadvertently impacting the rock walls during construction. Therefore, environmental effects caused by implementation of the Proposed Action will be less than significant for cultural resources. Reclamation consulted with the SHPO on April 24, 2008 regarding a determination of no adverse effects to historic properties, including the Camp Nine Road. The SHPO concurred with Reclamation's determination of no adverse effects to historic properties on May 20, 2008.

3.11 Indian Trust Assets

3.11.1 Affected Environment

Indian Trust Assets (ITAs) are legal interests in property held in trust by the U.S. for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITAs can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land; the U.S. is the trustee. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the U.S. The characterization and application of the U.S. trust relationship have been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions.

Consistent with President William J. Clinton's 1994 memorandum, "Government-to-Government Relations with Native American Tribal Governments," Reclamation assesses the effect of its programs on tribal trust resources and federally-recognized tribal governments. Reclamation is tasked to actively engage federally-recognized tribal governments and consult with such tribes on government-to-government level (59 Federal Register 1994) when its actions affect ITAs. The U.S. Department of the Interior (DOI) Departmental Manual Part 512.2 ascribes the responsibility for ensuring protection of ITAs to the heads of bureaus and offices (DOI 1995). Part 512, Chapter 2 of the Departmental Manual states that it is the policy of the Department of the Interior to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members. All bureaus are responsible for, among other things, identifying any impact of their plans, projects, programs or activities on Indian trust assets; ensuring that potential impacts are explicitly addressed in planning, decision, and operational documents; and consulting with recognized tribes who may be affected by proposed activities. Consistent with this, Reclamation's Indian trust policy states that Reclamation will carry out its activities in a manner which protects Indian trust assets and avoids adverse impacts when possible, or provides appropriate mitigation or

compensation when it is not. To carry out this policy, Reclamation incorporated procedures into its NEPA compliance procedures to require evaluation of the potential effects of its proposed actions on trust assets. (Reclamation-July 2, 1993). Reclamation is responsible for assessing whether the removal of Camp Nine Bridge has the potential to affect ITAs.

3.11.2 Environmental Consequences

No Action

Under the No Action alternative, no ITAs would be affected since they are not present within or adjacent to the project area. Therefore, implementation of the No Action alternative would cause no environmental effects to ITAs.

Proposed Action

The proposed action to demolish and remove the Camp Nine Bridge in order to eliminate a public health and safety hazard and reduce the environmental impacts of eventual bridge collapse does not affect ITAs. The nearest ITA to the proposed project site is the Sheep Ranch Rancheria, which is located approximately 7 miles northwest of the project site. Under the Proposed Action alternative, no ITAs would be affected since they are not present within or adjacent to the project area. Therefore, implementation of the Proposed Action alternative would cause no environmental effects to ITAs.

3.12 Environmental Justice

3.12.1 Affected Environment

Executive Order 12898 (February 11, 1994) mandates federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

Most of the land within or adjacent to the project area is under the jurisdiction of Reclamation, the U.S. Forest Service (USFS), and the U.S. Bureau of Land Management (BLM). There are no residents in close proximity to the project area. However, there are two U.S. Census Block Groups that are partially within or are in close proximity (within 1 mile) to the project area (**Table 8**; U.S. Census Bureau 2000). The Block Groups include residents who live on private land parcels that are accessed by State Highway 4 in Calaveras County and by Parrotts Ferry Road in Calaveras and Tuolumne Counties.

Table 8: Block Groups of Residents within 1 Mile of the Access Road and Project Area

Block Group	Census Tract	County
5	1.10	Calaveras
1	5	Calaveras
1	21	Tuolumne

The total population in 2000 in the affected block groups was 4,600. The cumulative racial characteristics of the blocks are presented in the following table.

Table 9: Cumulative Racial Characteristics of Block Groups[1]

Race	Percentage
White	91.2
Black	1.2
American Indian or Alaskan Native	0.8
Asian	0.3
Hawaiian or Pacific Islander	0.2
Some Other Race	4.4
Multi-racial	2.0
Hispanic or Latino	7.7

[1] Block Groups are those identified in **Table 8** above.

The proportions of minority populations in the Census Blocks are very similar relative to the minority populations in Calaveras and Tuolumne Counties. In 2000, the Calaveras County population was 91.2 percent White, and the Tuolumne County population was 89.4 percent White.

The populations living below the poverty level in 2000 (according to the most recent available U.S. Census data) in the Block Groups relative to the project area are detailed in **Table 10** below.

Table 10: Population Living below Poverty Level in 2000

County	Block Group	Census Tract	Percentage
All of Calaveras County			11.8
Calaveras	1	1.10	12.4
Calaveras	5	1.10	11.4
All of Tuolumne County			11.4
Tuolumne	1	5	5.2

3.12.2 Environmental Consequences

No Action

Adverse human health risks in the vicinity of the Proposed Action may result from ongoing safety hazards related to the deteriorated condition of the Old Camp Nine Bridge. However, no minority or low-income populations in the Census Blocks located near the project area were proportionately larger than the minority and low-income populations of Calaveras and Tuolumne Counties. There would be no disproportionate impact to minority or low-income populations residing near the project area. Therefore, implementation of the No Action alternative would cause no environmental effect to minority or low-income populations.

Proposed Action

No adverse human health or environmental effects were identified as a consequence of the proposed Old Camp Nine Bridge removal. In addition, a review of the racial characteristics of the population in the affected Census Block Groups that are located within or in close proximity to the project area did not identify any concentration of minority or low-income populations that were proportionately larger than the minority and low-income populations of Calaveras and Tuolumne Counties. There would be no disproportionate impact to minority populations residing in Census Blocks affected by the project area. Similarly, there would be no disproportionate impact to populations with incomes below the poverty level. Therefore, implementation of the Proposed Action would cause no environmental effect to minority or low-income populations.

3.13 Health and Safety

3.13.1 Affected Environment

The Old Camp Nine Bridge currently presents a public health and safety hazard. The bridge is subject to total inundation under high flow conditions, which conceals portions of the structure from recreational boaters and rafters on the river, increasing the possibility of an accident. The bridge, in its current structural condition, also poses a safety hazard to recreational users on the river from unauthorized access of the bridge by members of the public.

According to "Safety and Health on Bridge Repair, Renovation, and Demolition Projects" (FHWA unknown date), the primary hazards to construction workers on bridge projects are from construction activities, lead hazards, silica, noise, nuisance dust, carbon monoxide, heat stress, solvent exposures, metal fumes, and ergonomic hazards. Many of these hazards can be controlled or eliminated with proper planning and the implementation of effective industrial hygiene programs.

Federal regulations establish standards for safety procedures during construction activities involved in bridge demolition. The handling, storage, transportation, and disposal of hazardous materials, if any are used, also are regulated.

3.13.2 Environmental Consequences

Health and safety effects from the implementation of the Proposed Action would include a relatively low risk to project workers from industrial accidents and wildfire. There would be a slight increase in risk of traffic accidents for the public during the anticipated 3-month construction period (specifically during times of heavier vehicle traffic, such as periods during which demolition debris is transported to off-site facilities) and a negligible increase during field operations. The effects to public health and safety would be greater under the No Action Alternative.

No Action

Under this alternative, the Old Camp Nine Bridge would remain in its existing condition without maintenance or repair. The bridge is subject to total inundation under high flow conditions, which will further damage the condition of the bridge and may lead to its inevitable collapse. The bridge, in its current structural condition, poses a safety hazard to recreational users on the river and is dangerous when accessed by members of the public. Based on the riverbed condition at the site (as far as 50 feet from the bottom of the existing concrete pier to the bottom of the riverbed), it would be very difficult to retrieve the bridge if it collapses, which will pose significantly higher safety risks to recreational users and the overall environment conditions at the site. Therefore, implementation of the No Action alternative would cause potentially significant impact to health and safety.

Proposed Action

The primary objective of the Proposed Action is to demolish and remove the bridge and approaches in a manner that is safe for the environment and human health and is compliant with applicable permit and regulatory requirements. Leaving the bridge in place in its current condition could cause loss of life, serious injury, and extensive damage to boats used for recreation in the waterway. Removing the bridge would reduce the public health and safety concerns and rule out a significant safety hazard to anyone using that area. However, the safety hazard would not be entirely eliminated since the Proposed Action would involve leaving the west abutment, wing walls, rock wall, and approach apron in place.

Risks to public health and safety are expected to decrease following the completion of bridge removal activities and will be less than significant.

Occupational Hazards

Adherence to relevant safety regulations of the Occupational Safety and Health Administration (OSHA), Reclamation, and California Occupational Safety and Health Regulations would reduce the probability of accidents to the project workforce. The presence of large equipment during demolition, and movement of large heavy pieces of the bridge that will require removal, represents a significant health and safety risk to workers during demolition. With the incorporation of these work practices, and through establishing a culture of making safety a top priority, potential health and safety risks associated with demolition activities will be reduced to less than significant.

The risk of fire in the project area, which is a potential effect associated with demolition, could temporarily increase under the Proposed Action but would remain low. Fire suppression equipment, a no smoking policy, shutdown devices, and other safety measures also would minimize the risk of fire. The risk to the public would be minimal because of limited public use and presence in the project area. There would be a small increase in risk to area fire suppression personnel associated with the project.

Environmental effects caused by the implementation of the Proposed Action would be less than significant in the short term and would constitute a positive environmental effect in health and safety with completion of the project in the long term.

3.14 Land Use

3.14.1 Affected Environment

The ROI for land use includes the project area and federal lands in close proximity to the project area that provide access to recreation opportunities on federal lands. The project area is located on land managed by Reclamation. Lands adjacent to the project area include federal land managed by the BLM to the west and the Stanislaus National Forest (administered by the USFS), located to the east of the project area. Lands adjacent to the project area are undeveloped and are used primarily for grazing and open space.

Two operating hydroelectric facilities are located on the Stanislaus River upstream of the Old Camp Nine Bridge. The Stanislaus Powerhouse, which is owned and operated by PG&E, is located 0.5 mile upstream of the Old Camp Nine Bridge (Figure 2). The Stanislaus Powerhouse has a capacity of 91,000 kilowatts (kVA) and is accessed via FR 3N03. The Collierville Powerhouse, which is owned by CCWD and operated by NCPA, is located approximately 1.2 miles upstream of the Old Camp Nine Bridge (Figure 2). The Collierville Powerhouse, which is operated remotely, has a capacity of 253 megawatts (MW) and is accessed via the Camp Nine Road.

Each year, approximately 800,000 visitors take advantage of the various recreational opportunities at New Melones Lake Area Resource (Reclamation 2007). One of the original purposes of this reservoir is water storage for flood control. Water from New Melones Lake is also used for irrigation, municipal, and industrial uses (Reclamation 2007).

The nearest residential development consists of low-density rural residences located along Parrotts Ferry Road to the west of the community of Vallecito. Parrotts Ferry Road is a primary access route to the project area from State Route 4. The Fraguero grazing allotment is on the east side of Stanislaus River, south of the project area. It is categorized as a category 3 allotment, which indicates that there is no determination of rangeland health (BLM 1998).

The New Melones Lake Area Management Plan/Environmental Impact Statement, Draft Resource Inventory Report (Reclamation 2007) provides a description of recreation resources for the Camp Nine Recreation Area, which includes the project area. The area is located at the north end of the lake's upper reach and provides a semi-primitive recreation opportunity.

The area provides opportunities for non-motorized boat access, fishing, swimming, hiking, and picnicking. Before the dam was completed in 1979, the Old Camp Nine Bridge was a launch site for rafters. After the dam was constructed, it was assumed that the bridge would be inundated and many of the river-related opportunities would be lost. However, due to drought and low water levels, the bridge is often exposed, and there are some whitewater opportunities. Bridge jumping is also a popular activity, but gates have been put up to restrict access to the bridge, and signs warning against bridge jumping have been posted (Reclamation 2007).

Access to the Camp Nine Management Area (the Reclamation management unit wherein the project area is located) is limited, with the only practical route being Camp Nine Road, which is a narrow and winding unimproved road that originates near the Town of Vallecito. Development consists of a day use area that includes an informal parking area, footbridge, hiking trails, and one vault restroom. Other opportunities in this area include a hiking trail to Clark's Flat and low-impact activities such as wildlife viewing (Reclamation 2007).

Management issues for the Camp Nine Management Area include limited access on Camp Nine Road and limited access to the main day use area. Vandalism is an issue due to the remoteness of the area. The existing launch facilities located near the Old Camp Nine Bridge are inadequate because release from two power plants in the immediate vicinity make for unreliable river flows and because of safety issues. Potential liability is associated with bridge and bungee jumping. Other management issues include vandalism and looting of cultural resources due to its remoteness (Reclamation 2007).

3.14.2 Environmental Consequences

No Action

Under the No Action alternative, conditions would remain the same as described above, and Reclamation would not remove the Old Camp Nine Bridge, resulting in the continued existence of the bridge. The current safety hazards and associated potential liability issues would also continue under the No Action alternative.

It is likely that the condition of the bridge would continue to deteriorate, which would increase the potential for safety hazards for recreationists on the river. In addition, debris removal would disrupt river-related activities in the event of a bridge collapse. Therefore, implementation of the No Action alternative could have potentially significant impacts on land use.

Proposed Action

Implementation of the Proposed Action would improve current river-related recreation opportunities, remove the safety hazards posed by the bridge (including the hazardous activities such as bridge jumping), and remove or reduce the potential for liabilities associated with the current safety hazards.

There may be short-term, temporary disruptions to recreation activities in the vicinity of the project area that are accessed by Camp Nine Road during the demolition phase. For example, bankside access to the river would be restricted during demolition activities. However, there is adjacent bank access both upstream and downstream of the project area. Once the bridge has been removed, there would be no hazard to boating activities associated with the submerged bridge from high river flow conditions. The quality of boating activities would improve throughout the affected river segment. The safety hazards and potential associated liabilities associated with bridge jumping or other uses of the bridge would be eliminated.

Implementation of the Proposed Action would have short-term impacts on land use in that some access may be restricted during demolition activities, but would not result in any long-term impacts to land uses. The work associated with the bridge removal would occur within the project area and would not disturb adjoining lands. The Proposed Action would not permanently affect agricultural land uses, either within the project area or along the proposed access routes. There would be no livestock grazing or crop production removed from existing agricultural uses. Therefore, implementation of the Proposed Action would have less than significant local impact on land use in the short term, would bring about positive local environmental effects in the long term, and would cause no environmental effects at any time to adjoining land uses.

3.15 Socioeconomics

3.15.1 Affected Environment

Calaveras and Tuolumne Counties comprise the ROI for economic resources. The proposed project area includes the Old Camp Nine Bridge where it spans the Stanislaus River, which is the boundary between Calaveras and Tuolumne Counties. San Andreas is the county seat of Calaveras County, and Sonora is the county seat of Tuolumne County. **Table 11** summarizes population trends between 2000 and 2006 in the two counties. Calaveras County had a higher rate of growth than the State of California during this period. This is likely due to an influx of retirees moving into the county, as Calaveras County has a higher percentage of older residents relative to the state.

The population of Tuolumne County was 57,347 in 2006. The county grew at about half the rate of the state between 2000 and 2006, and grew 1.3 percent slower than Calaveras County during the same period. Projected population growth rates for the county indicate that population growth in the county will continue to be slow. By the year 2020, Calaveras County is projected to be home to more than 56,300 persons, an increase of more than 22 percent, while 64,000 are projected for Tuolumne County, an increase of about 12 percent from the 2006 population.

Table 11: Calaveras and Tuolumne Counties Population Estimates and Trends between 2000 and 2006

Area	Total Population			Percent Population Change 2000-2006	Average Annual Population Change
	2000	2003	2006		
State of California	34,098,740	35,990,107	37,444,385	9.8%	1.6%
Calaveras County	40,738	43,537	45,928	12.7%	2.1%
Tuolumne County	54,728	56,824	57,347	4.8%	0.8%

Source: California Department of Finance 2007a

The dominant employment sectors in Calaveras and Tuolumne Counties reflected different economies in 2006. The industry sectors with the largest number of jobs in Calaveras County include state, federal, and local government, which together accounted for 2,531 jobs, or 27.4 percent of the total number of nonagricultural employment. Transportation, warehousing, and utilities accounted for 1,610 jobs; natural resources and mining for 1,348 jobs; and the leisure and hospitality industry for 1,313 jobs (California Department of Finance 2007b).

As in Calaveras County, the largest industry sector in terms of employment in 2006 in Tuolumne County was state, federal, and local government (5,518 jobs). Transportation, warehousing, and utilities accounted for 2,927 jobs. The third largest employment sector was the leisure and hospitality industry, which accounted for 2,230 jobs. Educational and health services were the fourth largest industry, employing 2,211 workers. The Tuolumne County economy is in a transition phase, as the mining and timber industries have decreased in recent years while retail, tourism, services, and health care have grown.

Both counties are popular tourist destinations because of the recreation opportunities provided by scenic public lands (both federal and state) and because of agricultural tourism that includes winery tours, fruit and vegetable stands, tree farms, and historical sites (University of California Small Farm Center 2007 2000).

The per capita income in Calaveras County was $28,572 in 2005, which was 77.4 percent of the state per capita income of $36,963. The 2005 per capita income of $29,218 in Tuolumne County was 79.1 percent of the state per capita income. Per capita personal income consists of all income that is received by county residents in a given year from all sources. It is an indicator of the standard of living relative to the state.

3.15.2 Environmental Consequences

No Action

Implementation of the No Action alternative would not affect the socioeconomic resources of Calaveras County. The current population and economic trends in Calaveras and Tuolumne Counties would continue as described for the Affected

Environment. Therefore, implementation of the No Action Alternative would cause no environmental effects on socioeconomic resources.

Proposed Action

The Proposed Action is expected to have minimal influence on the economies of Calaveras and Tuolumne Counties through payroll earnings over the life of the project, which will be spent on items such as housing, food, goods, and services. In addition, economic benefits would occur because of the construction expenditures on equipment and supplies and services from local area vendors.

The Proposed Action is not anticipated to have any direct growth-inducing effects. It is expected that the majority of construction workers would temporarily relocate from larger population centers outside these counties or would be available within the two counties; therefore, there would be no local or regional population impacts and no demand for new permanent housing or increases in demand for other community services. Implementation of the Proposed Action would cause positive environmental effects in the short term. There would be no long-term environmental effects from implementation of the Proposed Action.

3.16 Soils and Geology

3.16.1 Affected Environment

The ROI for soils and geologic resources includes the project area and includes the area underneath and immediately surrounding the Old Camp Nine Bridge upslope on both river banks to the equipment staging areas and access roads.

The geology of the Stanislaus River channel at the Old Camp Nine Bridge location is characterized by Paleozoic Augen gneiss (of uncertain age) formations (Wagner et al. 1987). The geologic characteristics may be further described by interbedded black micaceous schist and chert with a limestone layer just downstream of the bridge. Geologic resources contain “undifferentiated and argillaceous members and chert members” (Clark 1964). The rocks are argillaceous and siltstone with some thin-bedded chert and minor lenticular limestone, thin-bedded chert, and black carbonaceous slate containing minor lenticular mafic pyroclastics. The geologic resources of the Stanislaus River are part of the Calaveras Formation, which consists of thin-bedded slate, chert, and siliceous slate containing calcarenite lenses and includes some volcanic rocks (Clark 1964). Further upstream from the Old Camp Nine Bridge, and at higher elevations, are Plutonic rocks, which are chiefly granodiorite, quartz monzonite, and granite, but include some hornblende gabbro and rocks of intermediate composition.

Soils in the area are very shallow and are summarized in **Table 12** below.

Table 12: Characteristics of Soils in the Project Area

Soil Type	Slopes	Coverage	Typical Soil Profile	Characteristics Common to Both
Dystric Lithic Xerocherpts	35 to 80 percent	Found from the channel extending north/northwest long the right bank (looking downstream) in the equipment staging area.	Loam layers with a depth of 0 to 18 inches followed by an unweathered bedrock layer with a depth of 18 to 22 inches.	Derived from residuum weathered from metasedimentary rocks. Excessively drained. Most restrictive layers have a moderately low to high capacity to transmit water or saturated hydraulic conductivity (0.14 to 5.95 inches/hour). Available water capacity is very low (2.2 inches). Depth to water table is more than 80 inches. Moderately to strongly acidic.
Dystric Lithic Xerocherpts-Rock outcrop-Typic xerumbrepts	40 to 110 percent	Found from the channel extending southeast to the left bank (looking downstream)	Loam layers to 39 inches and unweathered bedrock from 39 to 43 inches.	

Source: NRCS 2007, Stone and Irving 1982.

3.16.2 Environmental Consequences

No Action

In the short term, under the No Action alternative, geologic and soil resources would be the same as the existing conditions described above in the "Affected Environment" section. Geologic structures would not be artificially compromised, and soils on the river bank and in staging areas would not be denuded and would therefore not be compacted or lose infiltration capacity. In the long term, however, the eventual uncontrolled bridge collapse and the subsequent retrieval of fallen bridge debris would result in adverse impacts to soil and geologic resources in the form of further bank destabilization, soil erosion, compaction, and soil loss. Therefore, implementation of the No Action Alternative would cause potentially significant impact to soils and geologic resources.

Proposed Action

Soils located in the equipment staging areas, as well as under and surrounding the bridge itself, are subject to compaction from the use of heavy equipment for bridge removal and from supporting truck traffic. Bank destabilization may result in increased erosion and sedimentation to the Stanislaus River channel. Soil compaction may result in the reduction of soil infiltration capacity and, therefore, accelerated stormwater runoff from the disturbed areas to the Stanislaus River channel.

Soils that are disturbed as a result of the bridge removal work may be susceptible to accelerated erosive processes and may be transported into the Stanislaus River. In order to minimize project impacts to the soils, earth movement and grading activities will be kept to a minimum as much as possible. Regrading of the slopes surrounding the channel may occur at the end of the bridge removal, if necessary.

Environmental commitments to control soil erosion will be implemented during the bridge demolition work and will include measures such as diverting runoff from exposed soil surfaces, revegetating disturbed areas with native plants, and other measures to collect and filter runoff over disturbed land surfaces, such as the use of sediment/silt fences.

Overall, bridge removal activities will result in short-term adverse affects to soils and geology in the project area, namely soil excavation and compaction. However, over the long term, implementation of the Proposed Action would help to restore natural hydrologic processes that would reduce the potential for soil erosion. Short-term environmental effects to soils and geologic resources are less than significant and would result in positive environmental effects in the long term.

3.17 Traffic and Noise

3.17.1 Traffic

Affected Environment

The ROI for the traffic analysis consists of the access route to the project area from State Highway 4 and includes Parrotts Ferry Road, Camp Nine Road, Forest Route (FR) 3N03, and the highway at the junction with Parrotts Ferry Road (Map 2). The remainder of State Highway 4 is not included in the ROI because daily traffic levels on the highway are high relative to anticipated project-related traffic, as summarized below, and are not expected to experience any effect from the Proposed Action.

FR 3N03 provides access to the project area from the east side of Stanislaus River and connects to Camp Nine Road about 1 mile south of the bridge. The west end of the road segment that is part of the USFS transportation system terminates at the east side of the Old Camp Nine Bridge. North of this location, the road provides access to the Stanislaus Powerhouse, located slightly more than 0.5 mile northeast of the bridge. The road follows the east side of the river, which forms a tight, sinuous meander up- and downstream of the bridge. The approach to the bridge is on a very tight turn from FR 3N03 west onto the bridge access road. The road surface of FR 3N03 is in fair condition. There are no available traffic counts for the FR 3N03. Motor vehicles on the road include recreationists, as the road provides access to recreation opportunities in the Stanislaus NF, and employees of the PG&E Stanislaus hydroelectric facility located upstream of the Old Camp Nine Bridge.

Vehicular access to the west side of the site will be via the newer section of the Camp Nine Road from the intersection of the New Camp Nine Bridge north to NCPA's Collierville Powerplant (approximately 1 mile north of the Old Camp Nine Bridge). This portion of the road was constructed in the early 1990s and is

maintained in excellent condition. A portion of it will serve as the west staging area for the crane and loadout (**Map 4**).

Camp Nine Road provides access to public lands in the vicinity of the project area from State Highway 4 at the community of Vallecito via Parrotts Ferry Road. The majority of Camp Nine Road is a narrow winding road that was built to allow one-lane traffic. Approximately 3 miles of Camp Nine Road is on land owned by Reclamation. The remainder of Camp Nine Road is privately owned by 22 landowners, with easements to PG&E and NCPA. The power companies are responsible for the maintenance of the road in exchange for access rights. The road is in fair to poor condition with numerous potholes, eroded shoulders, and deteriorated guardrails (Reclamation 2007). Historic visitation for Camp 9 Road was 51,188 in 2005; 37,213 in 2006; and 36,911 in 2007. Visitation by month in 2007 was 2,588 in August; 8,372 in September; 2,450 in October; and 3,511 in November.

Parrotts Ferry Road runs from north to south and connects the communities along State Highway 4 to Tuolumne County. The most recent average daily traffic count was 2,244 vehicles, and was recorded in April, 1998 (Calaveras County 2007). The road provides access to residential and developed recreation uses in Calaveras and Tuolumne Counties.

State Highway 4 is a two-lane highway that runs southwest-to-northeast through Calaveras County. The California Department of Transportation collected traffic volumes for State Highway 4 at Vallecito in 2006. The annual average daily traffic (AADT) at Vallecito for northeast-bound traffic was 8,900 vehicles. AADT is the total volume for the year divided by 365 days (CDOT 2006).

Environmental Consequences

No Action

There would be no change in the traffic levels on federal and county roads and state highways from existing traffic levels if the No Action alternative is selected. Therefore, implementation of the No Action alternative would have no environmental effects on traffic.

Proposed Action

Implementation of the Proposed Action would increase the volume of traffic in the ROI (Camp Nine Road, FR 3NO3, Parrotts Ferry Road, and State Highway 4 at Vallecito) for the duration of bridge removal activities, which is estimated to require 3 months for completion. These increases would result from movement of project-related workers, equipment, and materials to and from the project area for bridge removal and the transport of bridge debris to off-site solid waste landfill or recycling facilities.

Project vehicle access to the site will be via FR 3N03 and the new portion of Camp Nine Road from the new Camp Nine Bridge to slightly upstream of the Old

Camp Nine Bridge. The condition of FR 3N03 will be maintained from any further deterioration on an as-needed basis throughout the demolition phase. The new section of Camp Nine Road was built recently, and it is already in good condition. It is expected that vehicles hauling equipment and bridge debris will not be able to negotiate the tight turn at FR 3NO3 and the bridge access, and will need to use the parking area at the Stanislaus Powerhouse as a turnaround (**Map 4** and **Appendix A, Photo Page 4)**. There could be conflicts between Stanislaus Powerhouse employee traffic and parking uses at the powerhouse with project-related traffic.

Approximately 85 truckloads are anticipated to remove demolition debris from the site. It is anticipated that the materials can be removed in approximately 45 hours (see **Table 1** for details).

The transportation of approximately 85 loads would result in an increase of less than 1 percent from the existing 8,900 AADT on state Highway 4. Assuming that current traffic levels on Parrotts Ferry Road are consistent with 1998 traffic levels, the maximum of 25 truckloads per day on the road would increase daily traffic by approximately 1 percent. If the truckloads are staggered, the increase in traffic from the transport of bridge debris would not be noticeable to motorists on State Highway 4 and Parrotts Ferry Road, although reduced speeds may be experienced at times.

The short-term increases in traffic are unlikely to result in significant deterioration of the roads. Increased traffic may raise the potential for accidents that involve vehicles turning onto Parrotts Ferry Road from Camp Nine Road - Parrotts Ferry Road carries a greater traffic volume than Camp Nine Road. Measures will be taken to control traffic during demolition as described in Section 2.3.5 – Traffic Control.

Project-related traffic would not conflict with existing traffic or existing uses of most roads in the ROI. Traffic conflicts between Stanislaus and Collierville Powerhouse employee traffic and project-related traffic could be further mitigated by scheduling project traffic to avoid the commuting periods. There would be a very small increase in the traffic levels on State Highway 4 and Parrotts Ferry Road. The increase in traffic levels occurring at any one time is expected to fall within the capacity of the roads. Therefore, environmental effects caused by implementation of the Proposed Action would be less than significant in the short term. Impacts would decrease to no environmental effects once demolition and waste removal are complete.

3.17.2 Noise

Affected Environment

Noise includes all sources of sound generated from natural sources, such as wind, or human sources, such as boats or cars. No information is available on ambient noise levels at or near the project area, but existing levels would be generated

primarily from natural sources, with intermittent noise from motor vehicle traffic on the access roads, water-based recreation traffic such as motor boats, and operation of the two upstream hydroelectric facilities. The project area is on federal land that is isolated from noise-sensitive land uses such as residential, lodging, and health care. The nearest noise-sensitive land use is a residential area located west of the project area along Skunk Ranch Road. The nearest residence to the project area is located 0.9 mile to the west, at the east end of Skunk Ranch Road.

The community noise exposure level (CNEL) standard for noise-sensitive land uses (residential, transient lodging, and health care) for Tuolumne County is 60 dBA (decibels adjusted) (Tuolumne County 1996). There is no designated CNEL for Calaveras County, which cites state and federal levels and appropriate for noise-sensitive land uses in the county (Calaveras County 2007). Most federal agencies, as well as the State of California, have set 65 dBA Day-Night Advisory Sound Level (L_{dn}) as appropriate for residential and other sensitive land use environments.

Environmental Consequences

No Action

There would be no change in ambient noise levels at the project area or in any sensitive land use areas. Therefore, implementation of the No Action alternative would have no environmental effects on noise.

Proposed Action

Noise will be produced at the site during the bridge removal activities and on the project access roads from vehicles transporting workers, equipment, and materials to and from the project area. Typical noise levels for construction activities range between 70 and 90 dBa for a receptor located 50 feet from the noise emitter (FHWA 1977). Undeveloped areas, open space, and vegetated areas attenuate line-source noise at a rate of 4.5 dBA per doubling of the (reference) distance (Calaveras County 2007). It is likely that the noise from construction activities would not be detectable because the nearest sensitive receptor is located 0.9 mile from the project area. Any detectable noise would be within the 60 to 65 dBa levels set by Tuolumne County and the State of California. Therefore, implementation of the Proposed Action would cause less than significant environmental effects to noise levels.

3.18 Visual Resources

3.18.1 Affected Environment

The ROI for the Proposed Action is the viewshed, which includes the project area and all areas that provide a view of the proposed bridge removal activities. The project area is in the foothills of the west slope of the Sierra Nevada. The regional

landscape is characterized by steep sided and rolling hills that range in elevation from a few hundred to a thousand feet (Reclamation 2007).

The Old Camp Nine Bridge is located in a narrow valley at the north upper reach of the New Melones Lake, within a steep-sided valley formed by the Stanislaus River. Because of the orientation of the river canyon, which is winding and surrounded by steep terrain, the viewshed of the project area is limited to an area within 0.5 mile up- and downstream of the bridge, or on slopes to the east and west that face the river. In general, the qualities of the scenic landscape increase with distance from New Melones Lake. The long, narrow upper reaches, have dramatic aesthetic qualities (Reclamation 2007). Vegetation community types include riparian woodlands, which provide seasonal dark to light green colors that provide a pleasing contrast with the light tan colors of exposed soils and rock and the flowing, ever changing colors and textures of the river. The diversity of the vegetation enhances the scenic quality, providing a variety of mounded linear forms and regular to irregular textures that soften the angular lines and forms of rocky outcrops on the steep slopes.

The existing bridge exhibits considerable deterioration in the wooden deck and other structural components, and detracts from the scenic quality of the surrounding landscape as viewed from the river, Old Camp Nine Road, and FR 3NO3. A chain link fence topped with concertina wire has been placed to prevent access to the bridge, and is an intrusive structure that provides strong linear contrasts with the surrounding vegetation. At low water levels, river-deposited debris that has collected on river banks around the bridge support structures is very noticeable. Other human modification consists of a nearby weir, which is also in a deteriorated condition, the access roads, and a boat launch ramp constructed of metal tubes located on a steep slope in close proximity to the bridge. The overall landscape character is rural.

The number of people who are exposed to the project area viewshed is low, and includes mostly river recreationists and motorists on Camp Nine Road and FR 3NO3. Motorists generally fall into the categories of recreationists who use the road to access recreation opportunities on the river or at Clarks Flat and employee traffic for the operation and maintenance of the two hydroelectric plants upstream of the Old Camp Nine Bridge.

3.18.2 Environmental Consequences

Impacts to scenic resources would be significant if the Proposed Action would (1) degrade the existing landscape character within the viewshed of sensitive viewing areas at recreation areas, residences, or transportation routes or (2) conflict with any management direction or objectives of the affected land management agency.

No Action

Under the No Action Alternative, no management action would be taken to remove the Old Camp Nine Bridge. The current dilapidated and deteriorating condition of the bridge is a visually intrusive element in views of the natural

landscape as seen by motorists on the roads and recreationists in the river. It is likely that the bridge would eventually collapse if the deteriorating structure is not removed or repaired. Bridge collapse would likely occur during a period of high flow. The bridge debris would be removed from the Stanislaus as soon as it would be feasible; however, removal activities would not be able to commence until the onset of low flow conditions, which could be several months subsequent to bridge collapse and may not ever occur depending on the feasibility for removing this debris.

The failure of the bridge is also likely to result in visible damage to banks and vegetation downstream of the bridge from gouging and scouring by bridge debris, which could be visible for years. The extent of damage would depend on the time of year and river conditions during bridge failure, which would influence the period of time it would take Reclamation to clean up the debris. Therefore, implementation of the No Action alternative is expected to cause potentially significant impact to scenic resources.

Proposed Action

The Proposed Action would consist of the short-term visual intrusion of activities that will demolish and remove the bridge and approaches including all steel structures, guard rails, and decking materials associated with the bridge. The two concrete piers and six concrete footings would be removed to the bedrock level. In addition, the east approach, abutment, and wing walls would be removed However, the rock wall on the east side of the project site (associated with the Old Camp Nine Bridge) will be left intact because of its value as a historic resource. The impacts from bridge demolition and removal would also include the visual intrusion of vehicles and equipment. The access roads and rubble walls associated with the road foundation that lead to the two approaches will be preserved because of their value as a historic resource.

The debris from demolition and removal activities would be captured in a containment system consisting of a debris net and blanket, which will capture wooden debris during removal, and a floating debris boom installed at a downstream location to capture wooden debris that escapes the debris containment. It is anticipated that demolition and removal activities would occur over a 3-day period. The demolition removal activities, removal of debris deposited in the debris containment system, and operation of equipment to remove and transport the debris would result in a localized, short-term, minor, adverse effect on scenic resources in the viewshed of the Old Camp Nine Bridge.

The long-term effect of the Proposed Action would be to remove a structure that, in its present condition, provides an intrusive contrast that detracts from the scenic character of the natural landscape in the project area viewshed. The deteriorating condition of the bridge deck and supporting members, as well as the safety fence topped with concertina wire, detracts from views of the natural landscape within which the bridge is an element. Removal of the existing bridge would result in a local, long-term beneficial effect on scenic resources in the affected viewshed.

Therefore, environmental effects caused by implementation of the Proposed Action would be less than significant in the short term and positive in the long term.

3.19 Cumulative Effects

According to the Council of Environmental Quality's regulations for implementing NEPA (50 CFR § 1508.7), an action may cause cumulative impacts on the environment if its impacts overlap in space and/or time with the impacts of other past, present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Based on a review of other proposed projects in the vicinity of the project area, the PG&E's proposed removal of the Stanislaus Afterbay Dam (which is included as part of FERC Spring Gap-Stanislaus Project #2130) was the only project identified as potentially contributing to the cumulative effects associated with the No Action and Proposed Action alternatives. When this activity is considered in combination with the alternatives, the following resources were identified as having the potential to be cumulatively affected by the removal of the Old Camp Nine Bridge: fisheries, surface water, health and safety, recreation, and visual resources. Potential cumulative effects to these resources are discussed in the following sections for the No Action and Proposed Action alternatives.

Fisheries

Reasonably foreseeable future projects that would have beneficial impacts on fisheries resources include restoration actions such as removing the Stanislaus Afterbay Dam. Under the No Action alternative the bridge would be left in place and would have a less than significant adverse impact on fish migration and a potentially significant adverse impact on fish habitat downstream in the event of a catastrophic event that could wash the bridge downstream. The past, present, and future projects in Stanislaus River, considered cumulatively with the No Action, would have a local, long-term, adverse effect on fishery resources in the Stanislaus River.

The Proposed Action, in conjunction with the removal of the Stanislaus Afterbay Dam, will have a local, long-term, beneficial impact on fish migration.

Wildfire

Under the No Action alternative, the Old Camp Nine Bridge would remain in place and there would not be any demolition activities. The No Action alternative would not involve any activities that could introduce a potential ignition source. The No Action alternative would have less than significant potential cumulative impacts resulting from wildfires.

During demolition activities, there would be a slightly increased potential for wildfires because of the use of potential ignition sources such as cutting torches and equipment. However, use of these ignition sources would be a short-term activity and would not result in significant adverse wildfire-related impacts.

Surface Water

Reasonably foreseeable future projects that would have beneficial impacts on hydrologic processes and water quality include restoration actions such as removing the Stanislaus Afterbay Dam. However, leaving the Old Camp Nine Bridge in place would continue to affect surface water hydrology in the vicinity of the bridge and would have a potentially significant adverse impact on surface water hydrology if a catastrophic event occurred that washed the bridge downstream. Catastrophic failure of the bridge could result in large sections of the bridge being moved downstream and, depending on their final disposition, could result in altering the hydrology. Any alternations from the natural channel morphology that occurs in the absence of non-natural structures could result in increased erosion and sedimentation. The past, present, and future projects along the Stanislaus River, considered cumulatively with the No Action, would have a local, long-term, adverse effect on hydrologic processes and water quality in Stanislaus River.

The Proposed Action, in conjunction with the removal of the Stanislaus Afterbay Dam, will have a local, long-term, minor beneficial effect on hydrologic processes and water quality in Stanislaus Canyon.

Health and Safety

Reasonably foreseeable future projects that would have beneficial impacts on health and safety include restoration actions such as removing the Stanislaus Afterbay Dam. Under the No Action alternative, the Old Camp Nine Bridge would continue to pose a significant health and safety risk to those using the area. There is also potential for catastrophic failure of the Old Camp Nine Bridge, which represents a significant adverse impact in terms of risk to health and safety. Overall, the No Action alternative would have a long-term, significant, adverse impact to public health and safety due to the hazard that the Old Camp Nine Bridge currently represents as well as the unknown potential hazard to health and safety it could pose in the event of a catastrophic failure.

The Proposed Action, in conjunction with the removal of the Stanislaus Afterbay Dam, will have a long-term, significant, beneficial impact to public health and safety because the bridge and other hazards would be removed from the Stanislaus River.

Recreation

Examples of reasonably foreseeable future actions that could have a beneficial cumulative effect on recreational opportunities include the proposed removal of the Stanislaus Afterbay Dam. This project could result in short-term disruptions of recreational activities due to demolition. Under the No Action alternative, the Old

Camp Nine Bridge would continue to be a physical barrier and hazard to those using this section of the river for recreation. The past, present, and future projects along the Stanislaus River, considered cumulatively with the No Action, would have an overall local, long-term, adverse effect on recreational activities for this section of the Stanislaus River.

The Proposed Action, in conjunction with removal of the Stanislaus Afterbay Dam, will have an overall local, long-term, beneficial effect on recreational activities for this section of the Stanislaus River.

Visual Resources

Under the No Action alternative, the proposed removal of the Stanislaus Afterbay Dam would have an overall beneficial effect on visual resources in the vicinity of the project area. However, the overall benefit would be diminished because the Old Camp Nine Bride would be left in place. In the short term, the No Action alternative would have the effect of reducing visual resources in the project area. Over the long term, there is potential for catastrophic failure of this bridge. Such failure could result in the bridge structure being dispersed downstream of the project site, which would potentially reduce visual quality over a broader area. The past, present, and future projects along the Stanislaus River, considered cumulatively with the No Action, would have a local, long-term, adverse effect on visual resources.

The Proposed Action, in conjunction with removal of the Stanislaus Afterbay Dam, will have an overall local, long-term, beneficial effect on visual resources for located at this section of the Stanislaus River.

Chapter 4 – Consultation and Coordination

4.1 Agency Coordination

The following sections summarize federal and state agency coordination in support of the Old Camp Nine Bridge Removal Project. Documentation of correspondence with federal and state agencies is included in **Appendix C**.

4.1.1 U.S. Fish and Wildlife Service

The Endangered Species Act of 1973, as amended, prohibits any person from taking (harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, relocating, or collecting or attempting to engage in any such conduct) any federally listed threatened or endangered species. Significant habitat modification or degradation that results in death or injury to federally protected species by significantly impairing behavioral patterns, such as breeding, feeding, or sheltering, is also prohibited. Administration and enforcement of the ESA are the responsibility of the USFWS.

Section 7 of the ESA outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats. Section 7(a)(1) requires federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires federal agencies to consult with the Services to ensure that they are not undertaking, funding, permitting, or authorizing actions that are likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

For this project, compliance with the ESA is required because the bridge is located on lands administered by the Bureau of Reclamation and removal of the bridge would constitute a federal action under NEPA. A Biological Assessment (BA) is required if listed species or critical habitat may be present in the action area. In addition, by regulation, a BA is required for major construction activities. The need to consult with the USFWS is also triggered for this project as part of the NEPA process.

For this project, the BA has been incorporated into the EA document. Sections of Chapter 3.0 have been developed to comply with USFWS requirements for a BA. Based on the analysis in this EA, the proposed activity is likely to have no effect on federally listed species and therefore is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat. Reclamation has issued a determination of no effect for this project (**Appendix F**). On April 1, 2008, USFWS provided one comment

on the no effect determination prepared by Reclamation. USFWS recommended that a LOP be established for the project as follows, “From December to June, there is no demolition to avoid the bald eagle breeding season. From July through November, work may proceed.” The USFWS also indicated that if the bald eagle territory is not breeding, or fails during the breeding season, this LOP could be lifted. Reclamation addressed this comment by incorporating this avoidance measure into the EA (as an environmental commitment) and the FONSI for this project.

4.1.2 California Department of Fish and Game

California Department of Fish and Game (CDFG) Code Section 1601 requires the CDFG be notified before beginning an activity that will substantially modify a river, stream, or lake (CDFG 2007b). In general, the CDFG must be notified of any work that is to be carried out within the annual high-water mark of a river or stream that contains fish and wildlife and supports riparian vegetation. However, Reclamation has previously reviewed the applicability of Fish and Game Code Section 1601 and has determined that Section 1601 applies solely to projects constructed “by or on behalf of, any state or local government agency or any public utility” (Turner 1998). Consequently, Section 1601 does not apply purely to federal actions completed for the benefit of the United States or agencies thereof. Thus Section 1601 would not apply to the proposed project, the removal of Old Camp Nine Bridge by a Reclamation contractor from Reclamation property for the primary benefit of the New Melones Project, because it fits the description of a purely federal project.

4.1.3 U.S. Army Corps of Engineers

In 1972, Section 404 of the Clean Water Act established a program to regulate the discharge of dredged or fill material into waters of the United States. The purpose of the Section 404 program is to protect the quality, including the physical, biological, and chemical characteristics of U. S. waters, from unregulated discharges of dredged or fill material that could permanently affect water resources (USACE 2007). The Rivers and Harbors Act of 1899 defined navigable waters of the United States as “those waters that are subject to the ebb and flow of the tides and/or are presently used, or have been used in the past, or maybe susceptible to use to transport interstate or foreign commerce." The Clean Water Act built on this definition and defined waters of the United States to include tributaries to navigable waters, interstate wetlands, wetlands which could affect interstate or foreign commerce, and wetlands adjacent to other waters of the United States.

The federal statutes of the Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act give the USACE jurisdiction over navigable waters and wetlands of the U.S. The program is jointly administered by the USACE and the EPA. The USACE is responsible for the day-to-day administration and permit review, and the EPA provides program oversight. The fundamental rationale of the program is that no discharge of dredged or fill material should be permitted if

there is a practicable alternative that would be less damaging to our aquatic resources or if significant degradation would occur to the nation's waters.

A nationwide permit (NWP) from the USACE is used to authorize a specified category of activities impacting waters of the U.S. NWPs may be used for Section 404 permitting in lieu of individual permits only if conditions in the specified in the NWP are met. NWPs are issued under Section 404 and cover a variety of activities impacting wetlands and waters of the U.S.

Reclamation consulted with the USACE regarding permit requirements for this project. In a letter dated April 16, 2008, the USACE indicated that "Due to the placement of staging areas above the ordinary high water mark (OHWM), as well as the use of existing access roads for all transportation of demolition equipment and resulting materials, we do not believe it is likely that the proposed work would have any adverse effect on waters of the U.S. However, due to the historic nature of the bridge, the Army Corps of Engineers must receive a copy of the letter of concurrence issued by the State Historic Preservation Officer. We also must receive a copy of the biological opinion from the U.S. Fish and Wildlife Service before a permit can be issued." Subsequent telephone conversations with Ms. Erin Hanlon of the USACE indicated that an application for a Nationwide Permit No. 23 should be completed for this project, along with the documentation requested in the April 16, 2008 letter. Ms. Hanlon also requested that a copy of the Old Camp Nine Bridge Removal Environmental Assessment and Finding of No Significant Impact (FONSI) be submitted to the USACE. On June 9, 2008, Reclamation submitted an application for a Nationwide Permit Number 23 and supporting documentation to USACE. It is anticipated that a Nationwide Permit Number 23 will be issued for this project within 30 days of USACE's receipt of this submittal.

4.1.4 Central Valley Regional Water Quality Control Board

Section 401 of the Clean Water Act requires any applicant for a federal license or permit for activities that may result in any discharge into waters of the U.S. to provide the federal permitting agency (USACE) with a certification from the respective state. In the State of California, the California State Water Resources Control Board (WRCB) oversees the Water Quality Certification program and Section 401 permitting. In order to obtain a Section 401 Permit, an application must be filed with the Regional WRCB. The Regional WRCB for the Stanislaus River Old Camp Nine Bridge area is the Central Valley Region Water Quality Control Board (CVRWQCB).

An individual 401 water quality certification will be obtained for the Old Camp Nine Bridge Removal Project. The 401 water quality certification will be required since a Nationwide Permit Number 23 will be issued for this project. Reclamation has completed a water quality certification permit application for the Old Camp Nine Bridge Removal Project.

4.1.5 California Air Resources Board

The CARB does not have authority to issue permits directly to stationary sources of air pollution. Consultation with Tuolumne and Calaveras Counties indicated that no air quality permit is necessary for the Old Camp Nine Bridge removal activities. Fugitive dust emissions from the project activities will be minimal and will not exceed "thresholds of significance." Threshold of significance may be defined as "an identifiable quantitative, qualitative or performance level of particular environmental effect" (Tuolumne County Department of Community Development 2007).

4.1.6 California State Historic Preservation Office

An activity that may affect properties listed or eligible for listing on the NRHP is not authorized by an NWP until the requirements of Section 106 of the NHPA have been satisfied. Further, federal agencies must follow their established procedures for complying with the requirements of Section 106 of the NHPA and provide the Sacramento District USACE with appropriate documentation that demonstrates the agencies' compliance.

Camp Nine Road, including its associated retaining walls leading to the Old Camp Nine Bridge, is listed on the NRHP as part of the New Melones Archaeological District. Because the road is a listed property, the potential effects to the road and its retaining walls are being taken into account during project planning and execution. The bridge itself has been renovated and does not support the eligibility of the road. Therefore, the removal of the bridge does not represent an adverse effect.

Reclamation consulted with the SHPO on April 24, 2008 regarding a determination of no adverse effects to historic properties resulting from the Old Camp Nine Bridge Removal project. The SHPO concurred with Reclamation's determination on May 20, 2008. Since Reclamation has determined that the proposed action will result in no adverse effects to historic properties (including Camp Nine Road), and SHPO has concurred, Reclamation's responsibilities under Section 106 of the NHPA have been fulfilled.

4.1.7 Tribal Consultation

Reclamation policy requires that early in the planning process, consultation should be initiated with appropriate Indian Tribes/Nations and the Bureau of Indian Affairs (BIA) concerning potential ITAs. The initial contact with the Indian Tribes/Nations in the immediate area should be government-to-government in a face-to-face meeting, if possible. Coordination should also occur with Reclamation's Native American Affairs Office and the BIA to identify other Indian Tribes/Nations outside the immediate area that may be interested or affected.

Reclamation sent letters informing the local tribes of the Old Camp Nine Bridge removal project. Representatives from Reclamation met with representatives from the Tuolumne on March 11, 2008. This meeting included a site visit to answer

questions related to the Proposed Action. The Tuolumne representatives also had the opportunity to discuss any concerns related to Proposed Action during this meeting.

4.2 Public Involvement

On April 1, 2008, the Resource Manager for New Melones Lake mailed a letter announcing the public comment period for removal of the Old Camp Nine Bridge. This letter was sent to individuals and organizations on Reclamation's mailing list. Media announcements were used to initiate the formal public comment period on the Old Camp Nine Bridge Removal Project EA. All interested agencies, groups, and individuals were invited to review the document and submit comments during the 30-day public comment period. Following the initial mailing, several postcards were returned to Reclamation. The mailing list included addresses for each known Assessor's parcel along Camp Nine Road. Several of the postcards mailed to parcel addresses came back undeliverable. This likely occurred because not all parcel addresses have mailboxes. In a second mailing, postcards were sent to addresses on actual mailboxes located at the entrance to Camp Nine Road. None of these mailings were returned, indicating they were delivered successfully. Reclamation decided to extend the public comment period by an additional 15 days to provide additional time for those who may not have received to initial mailing to have sufficient time to comment.

Specific actions that were taken as part of public review of the Draft EA included:

- Postcards were sent to neighbors on Camp Nine Road notifying them of the availability of the Draft EA (approximately 20 people).
- Letters and a copy of the Draft EA (hard and electronic copy) were sent to federal, state, and local agencies and the two operating power plants.
- An electronic copy of the Draft EA was posted on Reclamation's New Melones website.
- A notice announcing that the Draft EA was available for public comment was published in public newspapers.
- Hard copies of the Draft EA were made available for review at local libraries (located in Murphys, Angels Camp, Sonora, and Twain Harte).

A list of individuals, agencies, and organizations that received hard or electronic copies of the EA is included in **Appendix D**.
One comment letter was received on the Draft EA document. The Central Sierra Environmental Resource Center (CSERC) submitted a comment letter dated April 17, 2008. This letter stated the following:

- "Our Center supports the proposed action for the careful and controlled demolition of this bridge."

- "Our Center concurs with the conclusions of the FONSI that controlled demolition of this bridge will improve public safety as well as prevent environmental impacts that could occur if the bridge were destroyed in a catastrophic event – or even if it just continues to deteriorate over time. The project alternatives considered (beyond the proposed action and the no action alternative) are either too expensive and a waste of taxpayer dollars or are insufficient to protect public safety and the environment."

- "The most significant potential environmental impact if the proposed action is implemented would be potential contamination of New Melones Lake with a minimal amount of lead paint chips from steel beams. However, if the environmental commitments in preventing lead contamination are property implemented, even this relatively low level of concern will be abated."

- "Overall, CSERC provides strong support to the Bureau to approve the action, implement the project, and remove the hazardous bridge. We look forward to seeing the project completed in a timely manner."

Since these comments were supportive of the project and environmental commitments, no additional changes or edits to the EA were needed.

Chapter 5 – List of Preparers and Reviewers

The following individuals assisted in preparing this document.

Name	Resource Area
ARCADIS U.S., Inc.	
Phil Nicolay	Principal-in-Charge
Chris Rutledge	Project Manager
Pat Golden	Assistant Project Manager, Technical Review
Susan Riggs	Air Quality
Tom Bates	Vegetation
Scott Stewart	Wetlands
Carl Spath	Cultural Resources
Dan Fillipi	Wildlife/Fisheries
Lisa Welch	Environmental Justice, Land Use (including recreation), Health and Safety, Traffic and Noise, Socioeconomics, and Visual Resources
Jennifer Miller	Groundwater, Surface Water, Soils, and Geology
Sandra Fairchild	Technical Review
Debra Ballheim	Editorial Review
Jie Chen	Geographic Information Systems
Accord Engineering, Inc.	
David Cheng, PhD.	Project Manager
Max Pan	Engineering Design
Bureau of Reclamation	
Peggi Brooks	Project Manager
Amy Barnes	Technical Review, Cultural Resources
Dan Holsapple	Technical Review
Patricia Rivera	Technical Review, Indian Trust Assets
Liz Vasquez	Technical Review

Chapter 6 – References Cited

Accord Engineering, Inc. (Accord). 2007. Samples Analyzed by the Environmental Monitoring Branch, Mid-Pacific Region, Camp Nine Bridge at New Melones Lead in Paint.

Baker, Cindy. 2002. National Register of Historic Places Evaluation, Spring Gap-Stanislaus Hydroelectric System, FERC No. 2130, Tuolumne County, California. PAR Environmental Services, Incorporated. Sacramento, California.

Barnes, Amy J. 2008 Archaeological Investigation of the Camp Nine Bridge Removal Project, Calaveras and Tuolumne Counties, California. Bureau of Reclamation, Mid-Pacific Region. Sacramento, California.

Calaveras County. 2007. Calaveras County General Plan Baseline Report. [Web Page] Located at: http://www.co.calaveras.ca.us/departments/gp_update.asp#BaseReport. Accessed: November 29, 2007.

California Department of Finance. 2007a. California County Population Estimates and Components of Change. [Web Page] Located at: http://www.dof.ca.gov/html/DEMOGRAP/ReportsPapers/Estimates/E2/E-2_2000-07.php. Accessed: December 14, 2007.

California Department of Finance. 2007b. California County Profiles. [Web Page] Located at http://www.dof.ca.gov/HTML/FS_DATA/profiles/pf_home.php. Accessed: December 14, 2007.

California Department of Fish and Game (CDFG). 2007a. California's Wildlife. [Web Page] Located at: http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.asp. Accessed: December 2008.

CDFG. 2007b. Lake and Streambed Alteration Program available at: http://www.dfg.ca.gov/habcon/1600/index.html. Web site accessed 6 December 2007.

California Department of Transportation (CDOT). 2007. Traffic and Vehicle Data Systems Unit; 2006 All Traffic Volumes on CSHS. [Web Page] Located at http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2006all.htm. Accessed: November 29, 2007.

California Department of Water Resources (CDWR). 2003. California's Groundwater Bulletin 118. San Joaquin Valley Groundwater Basin, Eastern San Joaquin Subbasin. [Web Page] Located at: http://www.groundwater.water.ca.gov/bulletin118/index.cfm. Accessed December 17, 2007.

California Environmental Protection Agency, Air Resources Board (CARB). 2007a. Area Designations (Activities and Maps), [Web Page] Located at: http://www.arb.ca.gov/qaweb/mapdemo/map_module.php. Accessed: December 28, 2007.

CARB. 2007b. Quality Assurance
Air Monitoring Site Information Interactive Map, [Web Page] Located at: http://www.arb.ca.gov/qaweb/mapdemo/map_module.php. Accessed: December 28, 2007.

CARB. 2007c. Almanac Emission Projection Data (Published in 2007) Tuolumne County, [Web Page] Located at: http://www.arb.ca.gov/app/emsinv/emseic1_query.php?F_DIV=-4&F_YR=2006&F_SEASON=A&SP=2007&F_COAB=Y&F_AREA=CO&F_CO=55&F_DD=Y. Accessed: December 19, 2007.

CARB. 2007d. Almanac Emission Projection Data (Published in 2007) Calaveras County, [Web Page] Located at: http://www.arb.ca.gov/app/emsinv/emseic1_query.php?F_DIV=-4&F_YR=2006&F_SEASON=A&SP=2007&F_COAB=Y&F_AREA=CO&F_CO=5&F_DD=Y. Accessed: December 19, 2007.

California Native Plant Society (CNPS). 2007. Manual of California Vegetation. [Web Page] Located at: http://davisherb.ucdavis.edu/cnpsActiveServer/webintro.html Accessed: January 7 2008.

Central Valley Regional Water Quality Control Board (CVRWQCB). 1998. The water quality control plan (Basin plan) for the California Regional Water Quality Board Central Valley Region, fourth edition, 1998. The Sacramento River and the San Joaquin River Basin.

Clark, L. D. 1964. Stratigraphy and structure of part of the western Sierra Nevada metamorphic belt, California. USGS Professional Paper 410. 70 p.

Elsasser, Albert B. 1978. Development of Regional Prehistoric Cultures. Handbook of North American Indians, Volume 8: California. Edited by William C. Sturtevant. Smithsonian Institution, Government Printing Office. Washington D.C.

Federal Energy Regulatory Commission (FERC). 2005. Final Environmental Impact Statement Stanislaus River Projects. Office of Energy Projects. FERC/FEIS – 0171F.

Federal Register, Vol. 59. No 85, Tuesday, May 4, 1994, page 22951 - 22952.

Flint, Sandra S. and Randy M. Baloian. 2004. Historic Properties Management Plan for the Spring Gap-Stanislaus Project (FERC 2130), Tuolumne and Calaveras Counties, California. Applied EarthWorks, Incorporated. Fresno, California.

Jackson, W. Turrentine, Stephen D. Mikesell, and Harvey Schwartz. 1976. Historical Survey of the New Melones Reservoir Project Area. University of California, Davis. Prepared for the Department of the Army, Sacramento District Corps of Engineers.

Ludwig, Brian and Richard Deis. 2001. Cultural Resources Inventory of the Stanislaus River Hydroelectric Relicensing Project: Beardsley/Donnells (FERC Project No. 2005), Spring Gap-Stanislaus (FERC Project No. 2130), Donnells-Curtis (FERC Project No. 2118). KEA Environmental, Incorporated. Sacramento, California.

National Oceanic and Atmospheric Administration (NOAA). 2005. Federal Register 50 CFR Part 226 Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Includes Designated Critical Habitat for the Central Valley Steelhead. [Web Page] Located at: http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon Populations/Steelhead/STCCV.cfm. Accessed: January 2008.

Outdoor Adventure River Specialists (OARS). 2007. North Fork Stanislaus River Rafting. [Web Page] Located at: http://www.oars.com/california/stanislausriver.html. Accessed December 31 2007.

Pacific Gas and Electric Company (PG&E). 1936. Engineering Drawing Depicting Approaches for Highway Bridge Over Stanislaus River Near Stanislaus Power House. Department of Engineering.

PG&E. 1960. Engineering Drawing Depicting Lateral Bracing Details for Approach Spans Stanislaus River Bridge Near Powerhouse. Department of Engineering.

PG&E. 1961. Engineering Drawings of Reinforcement of Main Span of Highway Bridge, Concrete Paving for West Approach to Highway Bridge, and New Deck. Department of Engineering.

PG&E. 1962. Engineering Drawings of Highway Bridge Over Stanislaus River and General Elevation of Main Span and River Section. Department of Engineering.

PG&E. 1985. Bill of Sale to Transfer Old Camp Nine Bridge to Reclamation.

Stone, C. O. and D. M. Irving. 1982. Calaveras County Soil – Vegetation Handbook. Calaveras County Farm Advisor's Office. County Government Center. San Andreas, CA.

Theodoratus, Dorothea J., Clinton Blount, Ruth A. Gardner, Melville H. Hall, Connie S. Madsen, John H. Madsen, Kathleen McBride, Sydney A. Merkel, Thomas Nelson, Patricia J. Smith, and Marie M. West. 1976. An Ethnographic Study of the New Melones Lake Project. U.S. Army Corps of Engineers, Sacramento District.

Tuolumne County. 2005. Tuolumne County Profile. [Web Page] Located at http://portal.co.tuolumne.ca.us/. Accessed: December 11, 2007.

Tuolumne County Community Development. 1996. Tuolumne County General Plan. [Web Page] Located at http://portal.co.tuolumne.ca.us/. Accessed: December 11, 2007.

Tuolumne County Community Development. 2007. Thresholds of Significance under the California Environmental Quality Act (CEQA).

Turner, Jim. 1998. Internal Bureau of Reclamation Memo to Frank Michny. Subject: State Permit Requirements – Reply. September 21.

U.S. Army Corps of Engineers (USACE). 2007. Sacramento District. Permitting Overview available at: http://www.spk.usace.army.mil//organizations/cespk-co/regulatory/permitting.html. Web site accessed 17 December 2007.

U.S. Census Bureau. 2000. Census 2000 Summary File 1 (SF 1) 100-Percent Data for Census Block Groups in Calaveras and Tuolumne Counties, California. [Web Page] Located at http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_submenuId=datasets_1&_lang=en. Accessed: December 11, 2007.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2007. Web Soil Survey 2.0. National Cooperative Soil Survey. [Web Page] Located at: http://websoilsurvey.nrcs.usda.gov/app/. Accessed December 3, 2007.

U.S. Department of the Interior (DOI) Departmental Manual Part 512.2

U.S. Department of the Interior, Bureau of Land Management (BLM). 1998. Rangeland Health Standards and Guidelines for California and Northwestern Nevada Final Environmental Impact Statement; Appendix 21 – Implementation Plan. [Web Page] Located at: http://www.blm.gov/ca/pa/rangeland_management/final_rangeland_health/APPNDIX_21.pdf. Accessed: December 4, 2007.

U.S. Department of the Interior, Bureau of Reclamation (Reclamation). 2004. Travel Report, Old Camp Nine Bridge, New Melones Dam – General Condition Assessment.

Reclamation. 2007. New Melones Resource Management Plan / Environmental Impact Statement, Draft Resource Inventory Report.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2007a. Division of Migratory Bird Management. Online article discussing the bald eagle and endangered species status. Located at http://www.fws.gov/migratorybirds/baldeagle.htm. Accessed January 2008.

USFWS. 2007b. Sacramento Fish and Wildlife Office. Endangered species list. [Web Page] Located at http://www.fws.gov/sacramento/es/spp_list.htm. Accessed: January 2008.

USFWS. 2008. Sacramento Fish and Wildlife Office Home Page – Delta smelt information. [Web Page]. Located at: http://fws.gov/sacramento. Accessed: January 7, 2008..

U.S. Department of the Interior, National Park Service (NPS). 2001. Happy Isles Gauging Station Bridge Removal Project Environmental Assessment. [Web page] Located at: http://www.nps.gov/archive/yose/planning/hi/web/index.htm. Accessed December 11, 2007.

NPS. 2007. Happy Isles Gauging Station Bridge Removal Project, Environmental Assessment. [Web Page] Located at: http://www.nps.gov/archive/yose/planning/hi/web/index.htm. Accessed: December 27, 2007.

U.S. Department of Transportation, Federal Highway Administration (FHWA). 1976. Special Report: Highway Construction Noise: Measurement, Prediction, and Mitigation Appendix A Construction Equipment Noise Levels and Ranges. [Web Page] Located at: http://www.fhwa.dot.gov/environment/noise/highway/hcn06.htm. Accessed: December 17, 2007.

FHWA. 1977. Special Report: Highway Construction Noise: Measurement, Prediction, and Mitigation. [Web Page] Located at http://www.fhwa.dot.gov/environMent/noise/highway/contents.htm. Accessed: December 14, 2007.

FHWA. Unknown date. Safety and Health on Bridge Repair, Renovation, and Demolition Projects. Submitted To FHWA by Laborers' Health and Safety Fund of North America. [Web Page] Located at http://www.tfhrc.gov/hnr20/bridge/repair/intro/set.htm. Accessed: 1/07/08.

U.S. Environmental Protection Agency (EPA). 2007. Surf Your Watershed for the Stanislaus River Watershed web site. http://cfpub.epa.gov/surf/huc.cfm?huc_code=18040010. Web site accessed December 17, 2007.

U.S. Geological Survey (USGS). 1948. 7.5 Minute Topographic Quadrangles, Murphys and Columbia, CA. North American Datum 1983.

University of California, Berkeley. 2007. The University and Jepson Herbaria. Jepson Online Interchange for California Floristics. [Web Page] Located at: http://ucjeps.berkeley.edu/interchange.html Accessed: January 4, 2008

University of California Small Farm Center. 2007. California Agricultural Tourism Database. [Web Page] Located at http://www.calagtour.org/. Accessed: December 11, 2007.

Wagner, D. L., Jennings, C. W., Bedrossian, T. L. and E. J. Bortugno. 1987. Geologic map of the Sacramento Quadrangle. Regional Geologic Map Series. Map No. 1a(geology). Scale 1:250,000. California Department of Conservation. Mines & Geology.

Wallace, William J. 1978a. Post-Pleistocene Archeology, 9000 to 2000 B.C. Handbook of North American Indians, Volume 8: California. Edited by William C. Sturtevant. Smithsonian Institution, Government Printing Office. Washington D.C.

Wallace, William J. 1978b. Northern Valley Yokuts. Handbook of North American Indians, Volume 8: California. Edited by William C. Sturtevant. Smithsonian Institution, Government Printing Office. Washington D.C.

Wallace, William J. 1954. The Little Sycamore Site and the Early Milling Stone Cultures of Southern California. American Antiquity 20(2):112-123.